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A REVISION
OF THE AFRICAN PONERINE ANT GENUS *PSALIDOMYRMEX* ANDRÉ (HYMENOPTERA : FORMICIDAE)

B. BOLTON

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A REVISION OF THE AFRICAN PONERINE ANT GENUS *PSALIDOMYRMEX* ANDRÉ (HYMENOPTERA : FORMICIDAE)

BY

BARRY BOLTON

Pp. 1–16, 6 *Text-figures*

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A REVISION OF THE AFRICAN PONERINE ANT GENUS *PSALIDOMYRMEX* ANDRÉ (HYMENOPTERA : FORMICIDAE)

By B. BOLTON

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SYNOPSIS

The ant genus *Psalidomyrmex* of the Ethiopian Region s revised. Keys to species and descriptions are presented. Six species are recognised, one of which is described as new, and five new synonyms are established.

INTRODUCTION

Psalidomyrmex is a small, well-defined genus of ponerine ants containing only six species. It is peculiar to the wet forest zones of sub-Saharan Africa, particularly to the rain forest belts of West and Central Africa although some species do occur also in the Ugandan forests and one species is found on the offshore Principe Island, in the Gulf of Guinea.

Nests are constructed in rotten wood, usually in an advanced state of decay, or more rarely directly into the soil beneath a log. Individual foraging workers are found below rotten logs and in deep leaf litter and log mould. The food of the species is not known but the specialized mandibles of both species-groups of the genus imply a specialized diet.

Apart from scattered descriptions of new forms the only previous study of the genus was presented by Wheeler (1922) who gave a distribution map of the genus and a key to the then-known species. In many ways this key is unsatisfactory and in fact breaks down on the first couplet, even when only the species included in it are considered, as *foveolatus* is more closely related to *reichenspergeri* and shares the same mandibular configuration. In his key Wheeler implies that *foveolatus* has a mandibular structure similar to that of *procerus*, which is not the case, and further states that in *foveolatus* the scapes are 'reaching or surpassing the posterior corners of the head', which they do not.

The present paper recognizes two species-groups within *Psalidomyrmex*, each containing three species, based primarily upon the structure of the mandibles. The groups and their constituent species are discussed below.

ABBREVIATIONS OF MUSEUMS

AMNH, New York	American Museum of Natural History, New York, U.S.A.
BMNH	British Museum (Natural History), London, U.K.
IE, Bologna	Istituto di Entomolgià del'Universita, Bologna, Italy.
MCZ, Cambridge	Museum of Comparative Zoology, Cambridge, Mass., U.S.A.
MNHN, Paris	Muséum National d'Histoire Naturelle, Paris, France.
MRAC, Tervuren	Musée Royal de l'Afrique Centrale, Tervuren, Belgium.
NM, Basle	Naturhistorisches Museum, Basle, Switzerland.
NM, Bulawayo	National Museum, Bulawayo, Rhodesia.

MEASUREMENTS AND INDICES

Total Length (*TL*). Total outstretched length of the individual, from mandibular apex to gastral apex.

Head Length (*HL*). The straight-line length of the head in perfect full-face view, measured from the mid-point of the anterior clypeal margin (excluding the prominent labral lobe) to the posteriormost point of the occipital margin. (In species with a concave occipital margin the head length is measured to the mid-point of a line connecting the posterolateral projections.)

Head Width (*HW*). The maximum width of the head measured behind the eyes in full-face view.

Cephalic Index (*CI*). $$\frac{HW \times 100}{HL}$$

Scape Length (*SL*). The straight-line length of the antennal scape excluding the basal constriction or neck.

Scape Index (*SI*). $$\frac{SL \times 100}{HW}$$

Pronotal Width (*PW*). The maximum width of the pronotum in dorsal view.

Petiole Length (*PL*). The length of the petiole in profile from the anterior process to the posteriormost point of the tergite, where it surrounds the gastral articulation.

Dorsal Petiole Width (*DPW*). The maximum width of the petiole in dorsal view.

Dorsal Petiole Index (*DPI*). $\frac{DPW \times 100}{PL}$

All measurements are expressed in millimetres.

DEFINITION OF THE GENUS

PSALIDOMYRMEX André

Psalidomyrmex André, 1890 : 313. Type-species: *Psalidomyrmex foveolatus* André, 1890 : 314; by monotypy.

Worker. Black or red-brown ants belonging to the tribe Ponerini. Monomorphic but with notable size variation in some species. Lifeway cryptic, with nest sites usually in rotten wood. Size ranges from medium to large, *TL* ca 9·0–16·0.

Mandibles either elongate and falcate, with a concave apical (masticatory) margin which is equipped with a number of short teeth near the basal angle (*foveolatus*-group, Text-fig. 1), or the mandibles subtriangular with an elongate apical tooth, the apical margin more or less straight, edentate (*procerus*-group, Text-fig. 2). In both groups the basal angle is rounded, not acute, and a broad mandibular groove is present which commences laterodorsally and runs down the outer margin of each mandibular blade; the blades cross over at rest. Labrum distinct, prominent, in dorsal view projecting beyond the anterior margin of the clypeus as a rounded, usually transversely striate lobe. Clypeus short, transverse. Palp formula of maxillary 3, labial 4 segments (dissections of *foveolatus*, *procerus*, *reichenspergeri*, *wheeleri*). Lateral lobes of frontal carinae strongly expanded, completely concealing the antennal insertions. Antennae with 12 segments, the second funicular segment usually noticeably longer than the third. Eyes present, usually of moderate size but reduced in some species. Dorsal alitrunk with promesonotal suture distinct, metanotal groove reduced or virtually absent. Propodeal dorsum usually with a median, longitudinal, narrow groove or impression which in some species is also present on the posterior portion of the pronotum. Middle and hind tibiae each with a single pectinate spur, without a smaller, lateral spur. Pretarsal claws simple. Petiole nodiform. Gaster strongly constricted between the first and second segments.

Female. As worker but alate, the alitrunk with a full complement of flight sclerites. Ocelli present.

Male. Mandibles very reduced, edentate, short, roughly rectangular in shape and failing to meet apically at full closure. Antennae with 13 segments, filiform, the scape and first funicular segment short, their combined length less than that of the second funicular segment. Eyes large, ocelli present. Lobes of frontal cairnae small, raised, only partially covering the antennal insertions. Alitrunk with a full complement of sutures and flight sclerites. Pronotum strongly developed, not overhung by the mesoscutum in profile. Mesocutum without notauli, parapsidal furrows present but usually masked by the sculpturation. Scutellum swollen, usually somewhat dome-shaped in profile and with a dorsal, longitudinal impression. Hind wings with anal lobe present. Middle and hind tibiae each with a single pectinate spur, lateral spurs absent. Pretarsal claws with a tooth at or distal to the midlength. Gaster strongly constricted between first and second segments. Pygidium blunt or truncated apically, not produced into a curved spine; hypopygium broadly Y-shaped or bluntly truncated apically with curved lateral angles. Genitalia rectractile. Gonopalpi present, usually concealed by the pygidium.

The genus *Psalidomyrmex* is most closely related to *Plectroctena* F. Smith, another genus which is confined to the Ethiopian Region. A discussion of the relationships and derivation of these genera has been presented in a recent revision of *Plectroctena* (Bolton, 1974).

LIST OF SPECIES

foveolatus-group
  foveolatus André
  reichenspergeri Santschi
    mabirensis (Arnold) **syn. n.**
  sallyae **sp. n.**
procerus-group
  feae Menozzi
    feae var. *impressa* Menozzi **syn. n.**
  procerus Emery
    longiscapus Santschi **syn. n.**
    obesus Wheeler **syn. n.**
    procerus st. *collarti* Santschi **syn. n.**
  wheeleri Santschi

A further species, *clavicornis* Bernard (1952 : 209), has been removed from the genus and transferred to *Bothroponera* as a synonym of *B. talpa* (André) (W. L. Brown, personal communication of paper in preparation). I have examined the holotype female of *clavicornis* (in MNHN, Paris) and concur with Professor Brown.

KEY TO SPECIES

Workers

1 Mandibles falcate, the masticatory margin concave and with a number of short teeth, at least near the basal angle (Text-figs 1, 5) 2

– Mandibles subtriangular with an elongate apical tooth; the masticatory margin edentate and straight or nearly so (Text-figs 2, 6) 4

2 In dorsal view the first gastral tergite strongly narrowed anteriorly (Text-fig 3). Dorsal surface of first gastral tergite with small punctures, the diameters of which are less than the distances separating them. Petiole longer than broad, $DPI < 100$. Large species $HW > 2{\cdot}50$, $PW > 1{\cdot}70$. Full adult colour black. (Uganda, Cameroun, Zaire) . . . . ***reichenspergeri*** (p. 8)

– In dorsal view the first gastral tergite not narrowed anteriorly (Text-fig 4). Dorsal surface of first gastral tergite coarsly foveolate, the diameters of the foveolae equal to or greater than the distances separating them. Petiole as broad as or broader than long, DPI 100 or more. Smaller species, $HW < 2{\cdot}50$, $PW < 1{\cdot}70$. Full adult colour red-brown 3

3 Spaces between foveolae on pronotal dorsum and first gastral tergite densely striate. Antennal scapes relatively short, $SI < 75$. Eyes small, maximum diameter $< 0{\cdot}26$. (Sierra Leone, Ivory Coast, Ghana, Nigeria) . . ***foveolatus*** (p. 7)

– Spaces between foveolae on pronotum and first gastral tergite unsculptured, mostly smooth and shining. Antennal scapes relatively long, $SI > 80$. Eyes larger, maximum diameter $> 0{\cdot}26$. (Ghana) . . . . . . ***sallyae*** (p. 9)

4 Antennal scapes relatively long, SI 90 or more (range 90–102); head relatively narrow, CI 89 or less (range 84–89); petiole longer than broad, $DPI < 100$. (Cameroun, Zaire) . . . . ***wheeleri*** (p. 13)

– Antennal scapes shorter, *SI* 88 or less (range 79–88); head relatively broad, *CI* 91 or more (range 91–96); petiole broader than long, *DPI* > 100 5

5 Expanded lobes of frontal carinae smooth and shining over the site of the antennal insertions, unsculptured apart from a few striae centrally and basally. Median portion of clypeus unsculptured or with transverse striae. (Principe I.) . ***feae*** (p. 11)

– Expanded lobes of frontal carinae uniformly (but sometimes faintly) striate over the site of the antennal insertions. Median portion of clypeus longitudinally striate. (Ghana, Uganda, Cameroun, Gabon, Zaire) . . . . . ***procerus*** (p. 12)

THE *FOVEOLATUS*-GROUP

Characterized by the mandibles which are elongate-falcate and dentate in part.

In the three species constituting this group the mandible has apparently been modified from a basically subtriangular shape into a falciform structure. This has been achieved by the elongation of the apical margin distal to the rounded basal-internal angle. The apical (masticatory) margin has become concave and runs without interruption into the long, curved apical tooth so that the two are in effect a single structure. The apical margin retains short teeth in the part of its length closest to the basal angle, and in some specimens small teeth occur upon the curve of the basal angle itself. The basal portion of the mandible is also somewhat elongated (Text-figs 1, 5).

Of the three species known with mandibles as defined above, two (*foveolatus* and *sallyae*) are closely related, relatively small red-brown species which appear to be restricted to West Africa. The former has a wide range, from Sierra Leone to Nigeria, but the latter is as yet only known from two collections made in Ghana.

The third species, *reichenspergeri*, also has a wide range, but interestingly has not yet been found in any territory in which *foveolatus* is known to occur. The reverse also applies as *foveolatus* is not reported from Cameroun, Zaire or Uganda, the known range of *reichenspergeri*. This last species is larger than its West African counterparts and is black in colour.

Psalidomyrmex foveolatus André

(Text-fig. 4)

Psalidomyrmex foveolatus André, 1890 : 314. Syntype workers, SIERRA LEONE (*A. Mocquerys*) (MNHN, Paris) [examined].

DIAGNOSIS OF WORKER. Mandibles falcate. Antennal scapes with *SI* < 75. First gastral tergite not narrowed anteriorly; the foveolae on this segment and the pronotal dorsum with a dense striation between them. *DPI* 100 or more.

FURTHER DESCRIPTION. *Worker. TL* 9·4–10·2, *HL* 1·94–2·12, *HW* 1·68–1·84, *CI* 84–87, *SL* 1·20–1·32, *SI* 66–74, *PW* 1·24–1·32, *PL* 0·84–0·88, *DPW* 0·84–0·92, *DPI* 100–105 (10 measured).

Mandibles falcate, their apical margins with a number of small teeth distal of the basal angle. In some specimens the teeth are acute but in others low and rounded; occasionally teeth occur on the curvature of the basal angle itself. Eyes small, maximum diameter ca 0·16–0·22, distinctly less than the maximum width of the scape. Clypeal suture effaced, very reduced, usually not breaking the sculpture; not visible in more deeply coloured individuals.

General outline of head similar to that of *sallyae* (Text-fig. 5). Promesonotal suture distinct and impressed. Metanotal groove absent, in profile not impressed, the mesonotum and propodeum forming a continuous convexity. In dorsal view the original track of the metanotal groove is visible in some specimens but usually it cannot be discerned, and the dorsal longitudinal sculpture is always unbroken. Propodeal dorsum with a broad, median longitudinal impression or groove, at least posteriorly. The groove is generally broadest posteriorly, narrowing anteriorly. Pronotal dorsum without such a groove. Petiole in dorsal view usually slightly broader than long, with a rounded anterior and transverse posterior face. Dorsal surfaces of body and head with erect hairs, the appendages with hairs on all surfaces.

Sculpture everywhere basically of a dense, longitudinal striation with scattered foveolae. Striate sculpturation is also present on the mandibles, antennal scapes and legs. The expanded lobes of the frontal carinae are for the most part smooth, with striae restricted to the basal and internal portions. On the sides of the alitrunk the striation is finer than on the dorsum, and on the sides of the propodeum may be very fine indeed. Sides of petiole foveolate, the spaces between the foveolae reticulate-punctate. Dorsum of petiole as sides but the sculpture between foveolae much less intense than on the sides, superficial, in places absent on some specimens. Full adult colour a deep red-brown.

Female. As worker but with ocelli, and the alitrunk with flight sclerites. *TL* 10·4–11·6, *HL* 2·08–2·20, *HW* 1·80–1·88, *CI* 85–86, *SL* 1·28–1·40, *SI* 71–74, *PW* 1·48–1·76, *PL* 0·92–1·00, *DPW* 0·96–1·04, *DPI* 104. Maximum diameter of eye 0·30–0·36 (3 measured).

P. foveolatus is the commonest and most widely distributed species of the genus in the West African forest zone, ranging from Sierra Leone to western Nigeria. Nests are made in rotten logs, usually in an advanced state of decay, and workers forage singly either in the log or in the surrounding leaf litter.

P. sallyae, described below, is certainly the species most closely related to *foveolatus*, but the differences separating the two are numerous and are tabulated under *sallyae*. *P. foveolatus* itself appears to show but little variation over its wide range.

MATERIAL EXAMINED.

SIERRA LEONE: no date (ex coll. F. Smith). IVORY COAST: Lamto, Toumodi (*J. Lévieux*). GHANA: Tafo (*B. Bolton*); Tafo, numerous series (*D. Leston*); Legon (*D. Leston*); Kibi (*D. Leston*); Wiawso (*D. Leston*); Asamankese (*D. Leston*). NIGERIA: Ibadan (*Booker*).

Psalidomyrmex reichenspergeri Santschi

(Text-figs 1, 3)

Psalidomyrmex reichenspergeri Santschi, 1913 : 302. Holotype worker, CAMEROUN: Molunda (*A. Reichensperger*) (NM, Basle) [examined].

Plectroctena mandibularis subsp. *mabirensis* Arnold, 1954 : 293 figs 3, 3a. Syntype workers, UGANDA: Mabira Forest, 21.v.1952 (*G. Arnold*) (NM, Bulawayo) [examined]. **Syn. n.**

Psalidomyrmex mabirensis (Arnold); Bolton, 1974 : 334.

DIAGNOSIS OF WORKER. Mandibles falcate. Antennal scapes with $SI > 75$. First gastral tergite narrowed anteriorly, with small punctures but without foveolae. Large species, $HW > 2{\cdot}50$. $DPI < 100$.

FURTHER DESCRIPTION. *Worker.* *TL* 14·8–15·8, *HL* 3·28–3·48, *HW* 2·80–3·16, *CI* 85–90, *SL* 2·20–2·44, *SI* 76–78, *PW* 1·80–2·20, *PL* 1·36–1·48, *DPW* 1·12–1·32, *DPI* 82–90 (5 measured).

Mandibles falcate and with a number of short teeth on the masticatory margin close to the basal angle. In some specimens the teeth continue onto the curvature of the basal angle.

Sides of head feebly convex, the occipital margin broadly but shallowly concave. Eyes with maximum diameter ca 0·32–0·42, slightly less than the maximum width of the antennal scape. Promesonotal suture strongly impressed. Metanotal groove distinct in dorsal view, impressed in profile and separating the mesonotal convexity from that of the propodeum. Propodeal dorsum with a median, longitudinal groove running from the mid-point of the metanotal groove to the declivity. Petiole in dorsal view slightly longer than broad. In dorsal view the first gastral tergite strongly narrowed anteriorly so the extreme anterior surface is narrower than the posterior face of the petiole node. Erect hairs absent from the mesonotum and propodeum and usually absent from the first gastral tergite although on this surface a few may be present posteriorly.

Dorsum of head coarsely punctate, the spaces between the coarse punctures strongly longitudinally striate. Dorsal alitrunk with scattered coarse punctures, less dense than on the head and tending to be smaller and more numerous on the propodeum than the pronotal dorsum. Spaces between punctures on the pronotal dorsum tend to be smooth and shining although a few striae may be present, especially posteriorly. Mesonotal dorsum generally with weak striation; the propodeal dorsum finely but distinctly striate between the punctures. Sides of alitrunk with scattered punctures and fine dense striation. First gastral tergite with scattered punctures which are smaller than those on the head, the spaces between them mostly smooth but sometimes with very faint, superficial striation. Second gastral tergite as first but the striation much more distinct. Scapes and lobes of frontal carinae not striate. Full adult colour black.

Male. A specimen labelled as the male of *reichenspergeri* (det. Santschi) is present in the Santschi collection (NM, Basle). It bears the data 'Kamerunberg, Soppo 730 m 1912 (*v. Rothkirch*).'

This specimen differs from others in the genus which I have examined by having a narrow, very broadly Y-shaped subgenital plate, the dorsal arms of which are long and strongly curved. In other males examined, which I attribute to *procerus*, the subgenital plate is broad with short, thick, feebly recurved free angles.

The form of the mandibles relates this species to *foveolatus* and *sallyae* but *reichenspergeri* is larger than both these species and is black. The main characters separating it from its relatives are given in the key to species and the diagnoses.

Arnold (1954) originally described *mabirensis* as a subspecies of *Plectroctena mandibularis* Smith, but his figures and description were sufficient to indicate that *mabirensis* should correctly be placed in *Psalidomyrmex*, where it was later transferred (Bolton, 1974). Examination of the syntypes of *mabirensis* and direct comparison of them with the holotype of *reichenspergeri* now shows that the two names are synonyms.

MATERIAL EXAMINED.

CAMEROUN: no. 1343 (*G. Terron*). ZAIRE: Akenge (*Lang & Chapin*).

Psalidomyrmex sallyae sp. n.

(Text-fig. 5)

DIAGNOSIS OF WORKER. Mandibles falcate. Antennal scapes with $SI > 75$. First gastral tergite not narrowed anteriorly; the foveolae on this segment and the pronotal dorsum without dense striation between them. $DPI > 100$.

FURTHER DESCRIPTION. *Holotype worker.* *TL* 10·0, *HL* 2·08, *HW* 1·76, *CI* 85, *SL* 1·48, *SI* 84, *PW* 1·36, *PL* 0·88, *DPW* 0·92, *DPI* 104.

Outline shape of head as shown in Text-fig. 5. Mandibles falcate and with a number of short teeth on the apical margin which extend onto the rounded basal angle as low crenulations. Eyes with maximum diameter ca 0·30, about equal to the maximum width of the scape. Clypeal suture effaced, not breaking the sculpturation. Alitrunk in profile with the promesonotal suture strongly impressed, the metanotal groove more weakly so but sufficiently marked to separate the mesonotal curvature from that of the propodeum. In dorsal view the metanotal groove poorly developed but easily discernible. Propodeal dorsum with a median longitudinal groove running from the metanotal groove to the declivity. Pronotum without such a median groove. Dorsal surfaces of head and body with numerous erect hairs, which are also present upon the appendages.

Dorsal and lateral surfaces of head, alitrunk, petiole and gaster foveolate. On the dorsum of the head the spaces between foveolae are faintly longitudinally striate, the striation weak, virtually effaced in places, stronger on the sides of the head below and behind the eyes. Pronotal dorsum without striae between the foveolae although on the mesonotum and propodeum one or two weak striae may be present on the otherwise smooth surfaces. Metanotal groove with a band of short striae which project for a short distance both anteriorly and posteriorly. Sides of alitrunk with spaces between foveolae striate. Sides and dorsum of petiole with fine punctures or superficial reticulation between the foveolae. Gaster with spaces between foveolae unsculptured, both dorsally and ventrally. Mandibles striate; lobes of frontal carinae unsculptured. Full adult colour a deep red-brown.

Paratype workers. As holotype but one a teneral, with head and alitrunk orange-brown, the gaster darker. Dimensions of paratypes: *TL* 9·6–11·4, *HL* 2·00–2·32, *HW* 1·68–2·00, *CI* 83–86, *SL* 1·40–1·60, *SI* 83–85, *PW* 1·32–1·56, *PL* 0·84–1·00, *DPW* 0·92–1·08, *DPI* 104–109. Maximum diameter of eye ca 0·28–0·34 (4 measured).

Holotype worker, GHANA: Tafo, 23.vii.1966, ant ecology sample 120 (*D. Leston*) (BMNH).

Paratypes. GHANA: 3 workers, same data as holotype, one of them also bearing the number 806; 1 worker from the same locality but 19.vii.1966, ant ecology sample 110 (*D. Leston*) (BMNH; MCZ, Cambridge; AMNH, New York; NM, Bulawayo).

This species is very closely related to *foveolatus* and occurs within the range of that species. The following table illustrates the main characters serving to differentiate workers of the two species.

foveolatus	*sallyae*
Antennal scapes shorter, *SI* 66–74.	Antennal scapes longer, *SI* 83–85.
Maximum diameter of eye 0·16–0·22, less than maximum width of scape.	Maximum diameter of eye 0·28–0·34, about equal to maximum width of scape.
Metanotal groove vestigial or absent, not impressed in profile.	Metanotal groove visible in dorsal view, impressed in profile.
Pronotum and first gastral tergite with strong striation between foveolae.	Pronotum and more especially first gastral tergite without striae between foveolae.

The *PROCERUS*-Group

Characterized by the mandibles which are subtriangular with an elongate apical tooth, and with the apical (masticatory) margin edentate.

In this group the mandibles have retained a rather more generalised shape than is encountered in the previous group. The mandibles in *procerus* and its allies are subtriangular, with a long, curved apical tooth which is very broad and appears to be truly a continuation of the mandibular blade. The apical margin proximal to this tooth is more or less straight in full-face view and is edentate, with a fine and quite narrow cutting edge. The basal angle is broadly rounded, and the external margin is somewhat concave at about its midlength. The basal portion of the mandible is not markedly elongate (Text-figs 2, 6).

The three species placed in the *procerus*-group are very closely related, and *procerus* itself is the most variable species yet known in the genus in terms of size, sculpture and hairiness. The least known species, *feae*, has at present only been reported from Principe Island in the Gulf of Guinea, but of the others *wheeleri* is known from Cameroun and Zaire whilst *procerus* is widely distributed in West and Central Africa and also occurs in Uganda.

Psalidomyrmex feae Menozzi

(Text-fig. 6)

Psalidomyrmex feae Menozzi, 1922 : 349. Syntype workers, female, male, PRINCIPE I.: Roça Infante Don Henrique, iii.1901, 100–300 m (*L. Fea*) (IE, Bologna; MCZ, Cambridge) [examined].

Psalidomyrmex feae var. *impressa* Menozzi, 1922 : 352. Syntype workers, male, PRINCIPE I.: Roça Infante Don Henrique, ii.1901, 200–300 m (*L. Fea*) (IE, Bologna; MCZ, Cambridge) [examined]. **Syn. n.**

DIAGNOSIS OF WORKER. Mandibles subtriangular. Expanded lobes of frontal carinae over antennal insertions not striate. *SI* < 90, *DPI* > 100.

FURTHER DESCRIPTION. *Worker*. *TL* 10·8–12·2, *HL* 2·08–2·36, *HW* 1·96–2·24, *CI* 92–95, *SL* 1·56–1·80, *SI* 79–81, *PW* 1·52–1·68, *PL* 1·00–1·08, *DPW* 1·12–1·20, *DPI* 108–116 (4 measured).

Very closely related to *procerus* and separated from it only by the following.

1. Expanded lobes of frontal carinae smooth and shining in *feae*, striate in all specimens of *procerus* examined.
2. Median portion of clypeus immediately in front of the lobes of the frontal carinae unsculptured or with feeble transverse striae in *feae*, longitudinally striate in *procerus*.
3. Size range in *feae* at lower end of *procerus* range.

As only the type-series of workers and a single queen of *feae* and its absolute synonym *impressa* have been examined the consistency of the characters listed above cannot be guessed. However, in the material examined they serve to separate the two species and it has been decided to retain *feae* as a distinct species until further material becomes available.

Psalidomyrmex procerus Emery

(Text-fig. 2)

Psalidomyrmex procerus Emery, 1901 : 50. Syntype females, male, worker, CAMEROUN (*Conradt*) (NM, Basle) [examined].

Psalidomyrmex longiscapus Santschi, 1920 : 8. Holotype female, GABON: Samkita (*F. Faure*) (NM, Basle) [examined]. **Syn. n.**

Psalidomyrmex obesus Wheeler, 1922 : 92, fig. 19. Syntype workers, ZAIRE: Medje (*Lang & Chapin*) (AMNH, New York; MCZ, Cambridge) [examined]. **Syn. n.**

Psalidomyrmex procerus st. *collarti* Santschi, 1937 : 74. Holotype worker, ZAIRE: Ituri, Matenda, 22.ix.1929 (*A. Collart*) (MRAC, Tervuren) [examined]. **Syn. n.**

DIAGNOSIS OF WORKER. Mandibles subtriangular. Expanded lobes of frontal carinae striate. $SI < 90$. $DPI > 100$.

FURTHER DESCRIPTION. *Worker*. *TL* 11·4–16·2, *HL* 2·28–3·20, *HW* 2·12–3·04, *CI* 91–96, *SL* 1·76–2·48, *SI* 80–88, *PW* 1·72–2·36, *PL* 1·08–1·56, *DPW* 1·24–1·68, *DPI* 106–118 (20 measured).

Mandibles elongate-subtriangular, edentate (Text-fig. 2). Sides of head convex, the occipital margin impressed medially, the outline shape generally as in Text-fig. 6. Eyes of moderate size, maximum diameter ca 0·30–0·48. Promesonotal suture deeply impressed, metanotal groove varying from a feebly marked line to absent. In some specimens it is more distinct in the middle of the dorsum than laterally but in profile the metanotal groove makes at the most a very feeble impression in the dorsal outline and is often indiscernible. Propodeal dorsum with a narrow, median longitudinal groove, running from the metanotal groove to the declivity. A short, median, longitudinal groove is also present upon the posterior half of the pronotum, but this may be difficult to see in more heavily sculptured individuals. Node of petiole distinctly broader than long in dorsal view. Erect hairs variably present on dorsum of head and body, but apparently always absent from the propodeal dorsum and in many specimens also absent from the mesonotum. Full adult colour black.

Sculpture very variable but mandibles, legs, antennal scapes and expanded lobes of frontal carinae always striate. Head and dorsum and sides of alitrunk always foveolate with striate interspaces, but the density of foveolae and intensity of striation variable. First and second gastral tergites foveolate, the foveolae varying in size, number and depth between individuals and the spaces between them usually feebly striate, although the intensity of striation varies from almost absent to very sharp. On the second tergite the anterior and posterior margins of the individual foveolae tend to be lost, and aligned foveolae run together to form a number of longitudinal impressions separated by raised welts, but again the formation of such sculpturation varies from individual to individual.

Female. Answering to the description of the worker but with ocelli, and the alitrunk with flight sclerites. The queens tend to be somewhat larger than the workers of a given series, but their indices (CI and SI) fall within the worker range.

Male. I have examined four male specimens which I tentatively associate with *procerus* as I have not been able to see the syntype males. These males differ markedly from the male associated with *reichenspergeri* in the shape of the subgenital plate. In *reichenspergeri* this is a narrow, broadly Y-shaped sclerite whereas in *procerus* it is short and broad, with short, thick, feebly projecting free corners which are slightly curved. The plate is thickly T-shaped, with the stem broad and the arms short.

P. procerus is the most widely distributed species of the genus and, outside West Africa, is the species most commonly collected (*foveolatus* appears to be the commonest species in West Africa). *P. procerus* occurs throughout the forest zones of West and Central Africa and is also present in Uganda. Nest sites, as in *foveolatus*, appear to be situated in rotten wood.

I am not entirely convinced that the concept of *procerus* expressed above represents a single species. The great variation seen in the workers could possibly conceal distinct but at present unrecognizable species as not enough material is presently available to show up any consistently differing characters which may be present.

MATERIAL EXAMINED.

GHANA: Tafo (*B. Bolton*); Tafo (*D. Leston*); Kade (*D. Leston*); Mt Atewa (*D. Leston*); Kukurantumi (*D. Leston*). UGANDA: Kawanda (*M. M. Musoke & W. B. Banage*); Kampala (*C. C. Gowdey*); Entebbe (*C. C. Gowdey*). CAMEROUN: Yolé (*G. Terron*); Mt Nkolodon (*G. Terron*); no. 1070 and 1277 (no loc.) (*G. Terron*); Matute (*B. Malkin*). GABON: Plateau d'Ipassa (*J. A. Barra*). ZAIRE: Leopoldville (*Mouchet*); Ituri Forest (*C. P. Haskins*).

Psalidomyrmex wheeleri Santschi

Psalidomyrmex wheeleri Santschi, 1923 : 263. Syntype workers, ZAIRE: Medje, Akenge and Niapu (*Lang & Chapin*) (AMNH, New York; MCZ, Cambridge; MRAC, Tervuren; NM, Bulawayo) [examined].

DIAGNOSIS OF WORKER. Mandibles subtriangular. Expanded lobes of frontal carinae striate. *SI* 90 or more, *DPI* < 100.

FURTHER DESCRIPTION. *Worker. TL* 13·6–14·6, *HL* 2·48–2·92, *HW* 2·20–2·60, *CI* 84–89, *SL* 2·00–2·52, *SI* 90–102, *PW* 1·80–1·96, *PL* 1·32–1·40, *DPW* 1·28–1·36, *DPI* 94–97 (8 measured).

Answering to the description of *procerus* but a more slenderly built species with a narrower head, longer antennal scapes and a longer, narrower petiole. Maximum diameter of eye in range 0·36–0·50. In general characters of colour, sculpture etc., *wheeleri* does not separate from *procerus* but the index ranges given below consistently differentiate the two species.

wheeleri	*procerus*
Head narrower, *CI* range 94–89.	Head broader, *CI* range 91–96.
Scapes longer, *SI* range 90–102.	Scapes shorter, *SI* range 80–88.
Petiole longer than broad, *DPI* range 94–97.	Petiole broader than long, *DPI* range 106–118.

The specimens constituting the type-series of *wheeleri* were first mentioned by Wheeler (1922) who identified them as *procerus*. This series consisted of nine workers from Medje, Akenge and Niapu, in Zaire, and were collected by the Lang & Chapin expedition. Wheeler noted that the specimens were all 'taken from the stomachs of toads (*Bufo superciliaris, funereus* and *polycercus*).'

Santschi (1923 : 263) correctly decided that these specimens were not *procerus* but represented a new species, which he called *wheeleri*.

All the nine specimens mentioned by Wheeler were thus to be considered syntypes but to the present have not been labelled as such. I have traced eight of the nine and they are deposited as follows.

AMNH, New York: 2 workers, one 'Niapu, Congo (*H. O. Lang*) stomach *Bufo polycercus;*' the other 'Medje, Congo (*H. O. Lang*) stomach *Bufo funereus*.' (the latter now in BMNH).

MCZ, Cambridge: 2 workers, one 'Medje, Congo (*H. O. Lang*) stomach *Bufo superciliaris*'; the other 'Akenge, Congo (*Lang*) stomach *Bufo polycercus*.'

MRAC, Tervuren: 1 worker 'Musée du Congo; Ituri, Medje 1910 Exp. Lang, Chapin, stomach *Bufo funereus*.'

NM, Bulawayo: 1 worker 'Akenge, Congo (*Lang*) stomach *Bufo polycercus*.'

I have added a circular, blue BMNH 'syntype' label to each of these specimens. The ninth and final syntype has not been located.

A female in MCZ, Cambridge collection has been tentatively associated with these workers as it possesses the indices *CI* 89, *SI* 97, *DPI* 92, and otherwise generally resembles the workers.

MATERIAL EXAMINED.

CAMEROUN: Avom, 49 (*G. Terron*). ZAIRE: Banziville (*Augustin*); Ituri Forest, vic. Epulu (*T. Gregg*).

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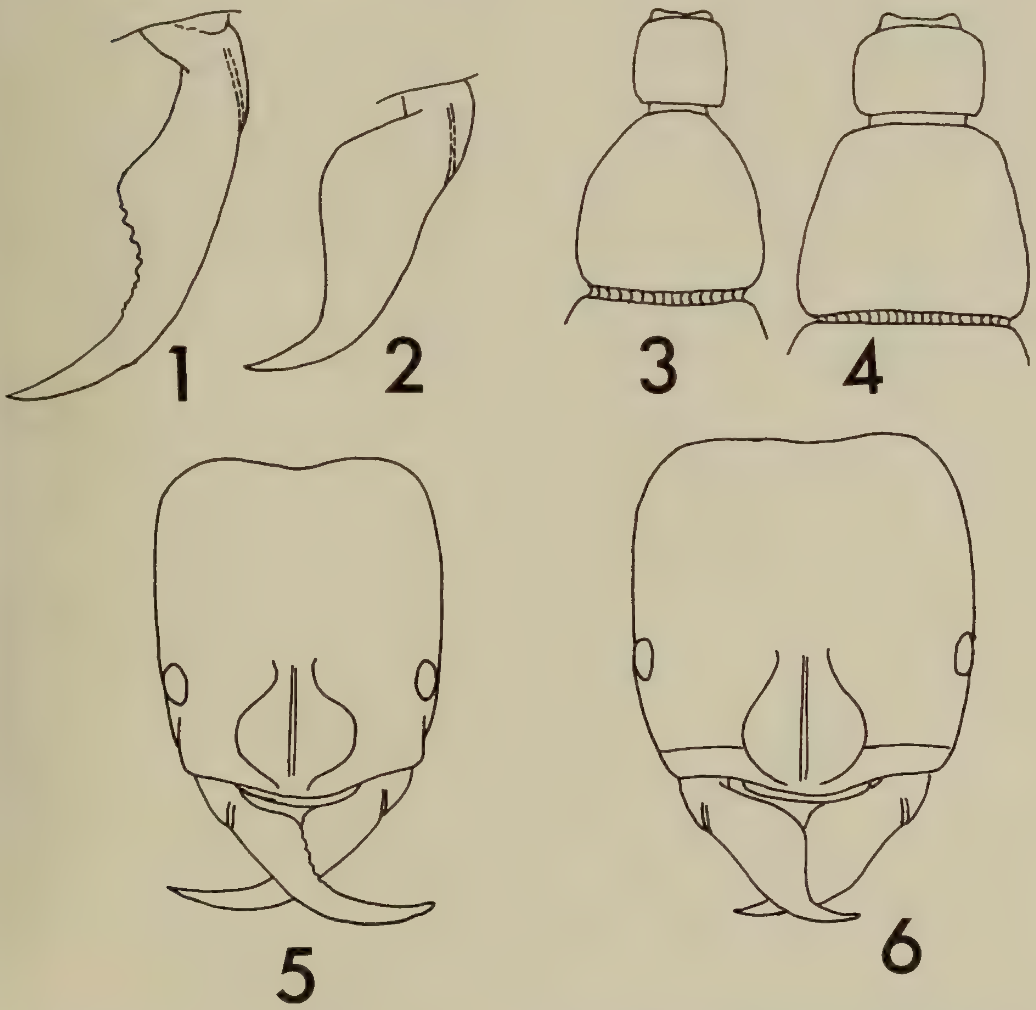

FIGS 1–6. 1, 2. Left mandible of (1) *Psalidomyrmex reichenspergeri*, (2) *P. procerus*. 3, 4. Dorsal view of petiole and first gastral tergite of (3) *P. reichenspergeri*, (4) *P. foveolatus*. 5, 6. Outline of head of (5) *P. sallyae*, (6) *P. feae* ; antennae and pubescence omitted.

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THE BUTTERFLIES NAMED BY J. F. GMELIN (LEPIDOPTERA : RHOPALOCERA)

R. I. VANE-WRIGHT

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
ENTOMOLOGY Vol. 32 No. 2
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BY

RICHARD IRWIN VANE-WRIGHT

Pp. 17–64; 6 *Plates*

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THE BUTTERFLIES NAMED BY J. F. GMELIN (LEPIDOPTERA : RHOPALOCERA)

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SYNOPSIS

An historical review is given concerning the 26 butterfly names introduced by J. F. Gmelin. All these names appeared in the 13th edition of Linnaeus' *Systema Naturae* (1790), the great majority being based on previously unnamed descriptions of butterflies published by I. I. Zschach in *Museum Leskeanum* (1788–9). The fate of the Leske specimens is traced to the present day, and full synonymies are presented for all the species concerned. Two of the names are re-instated (at the subspecies level) giving a total of nine Gmelin names currently in use for recognized butterfly species or subspecies. Eleven new synonymies are established, four previous synonymies re-established, and 37 lectotypes designated (14 for Gmelin names, the remainder for taxa erected by other authors). In addition, neotypes are designated for three of the Gmelin species. Brief observations are given concerning the importance of Ambon and Surinam as type-localities, and the apparent survival of Cramer material in the British Museum (Natural History).

INTRODUCTION

THIS WORK deals primarily with the classification of the 23 butterfly species named in 1790, by J. F. Gmelin, from descriptions in the catalogue of the N. G. Leske collection (Karsten, 1789; see Pl. 1, fig. 2). Gmelin published these names in the 13th edition of Linnaeus' *Systema Naturae,* of which work Gmelin was effectively both author and compiler. The 13th *Systema Naturae* includes a large number of new names, normally attributed to Gmelin *in* Linnaeus, the great majority of which were coined by Gmelin for previously unnamed animals, plants and minerals already described or illustrated in the literature. Sherborn (1902) lists all the Gmelin animal names, but in many groups of insects they have been almost completely ignored (Diptera), or partially ignored (Coleoptera, Orthoptera). The butterflies, however, have been largely accounted for, at least from a nomenclatorial standpoint, due to a series of chance events. Almost all were named from the Leske collection, which was shortly afterwards purchased by the then Dublin Society. Over 50 years later the remains of the collection came to the attention of W. F. Kirby, who was then working in Dublin. Kirby (1869; 1871; 1877), who at that time was preparing his pioneer butterfly catalogue, drew attention to the general problem of the Gmelin names, at the same time accounting in detail for the majority of the butterfly species involved. As already indicated, however, in many groups of insects the Gmelin names are still ignored, even for the purposes of primary homonymy. Since the classification and nomenclature of butterfly species has reached a relatively advanced stage, it seems appropriate, some 100 years after the appearance of Kirby's catalogue, to review the Gmelin butterfly species again. In doing so, some fresh insight has been gained concerning the problems of the Gmelin names and the Leske collection. It is hoped that the present paper will be of use not only to butterfly workers, but also to those who may wish to tackle the problems raised by Gmelin names in other groups.

HISTORICAL REVIEW

In 1788 G. Müller of Leipzig published a work by I. I. Zschach, the *Pars Entomologica* of *Museum Leskeanum* (Pl. 1, fig. 1). The latter (Pl. 1, fig. 2) was to be a catalogue of the collection of natural history objects, animal, plant and mineral, formed by Nathaniel Gottfried Leske. Of Russian parentage, Leske was living and working in Leipzig at the time of his death in 1786. He described himself as a 'natural historian and economist', being the author of a considerable number of popular articles, books and translations.

The first complete part of *Museum Leskeanum*, the *Regnum Animale* (Pl. 1, fig. 2), was published by Müller in the following year, 1789. This work, largely written and edited by D. L. G. Karsten of Marburg, included Zschach's *Pars Entomologica* as 'Classis V. Insecta' (Pl. 1, fig. 3), which comprised pages 1–136, the original pagination of Zschach. Classes I–IV take up pages I–XLIV, following Karsten's preface, etc.; the pagination of the work is thus rather complex, due to the prior publication of Zschach's contribution, the same type settings being used for both. It is interesting to note that Class VI, Vermes, follows on from the Insecta, as page 137, etc.

Karsten's contributions to *Museum Leskeanum* are based on the Linnaean system of classification, but for the insects Zschach followed Fabricius (Pl. 1, figs 1, 3). Zschach evidently considered the Leske collection to contain a large number of new species, or, perhaps more accurately, species which he could not recognise amongst the descriptive literature known to him. Whilst the known species were merely listed by Zschach (e.g. Pl. 2, fig. 5, species 1–5), these unknown species were described, but names were not given to them (e.g. Pl. 2, fig. 5, species 6;

Pl. 3, fig. 6). Thus in the *Pars Entomologica* each previously named species of an order is given a consecutive number (starting from 1), then an abbreviation indicating the section of the genus, then the specific epithet, and finally a literature reference. The unnamed species are numbered, but appear without a binomen or reference. Instead, after the abbreviated indication of the generic section, an asterisk appears, followed by Zschach's Latin description of the insect concerned (Pl. 2, fig. 5; Pl. 3, fig. 6). This pattern of presentation is followed for the hundreds of unnamed insects thus described by Zschach in *Museum Leskeanum*, all of which may be readily recognized by the asterisk mark.

In 1790 (Hopkinson, 1908), volume 5 of the 13th Linnaean *Systema Naturae* appeared, compiled by J. F. Gmelin, and also published in Leipzig. Within two to three years Gmelin's edition was entirely reprinted verbatim by Delamolliere at Lugduni, i.e. Lugduni Monachorum (not Batavorum), or Lyon (not Leiden). The format and pagination were identical with the original, but the type was reset and, although very accurate, the occasional misprint occurs. Since volume 1 (Animalia) had only one title-page for its seven bulky parts, only part 1 is identifiable at sight, each other part having simply its own half-title. Part 5, Insecta (1792) can be identified only by the misprints. So far only three of these have been noticed, all affecting the numbering of *Papilio* species: p. 2248 numbers run 878, 351, '44', 44 (they should be . . . 45, 44); p. 2250, number '336' should be 356; p. 2360, number '701' should be 901. Otherwise either printing appears satisfactory for study, provided one knows which is used. Since the bibliographic data for the reprint are identical, apart from the date and publisher's detail, with Gmelin's original, only the latter is listed in the references.

In the 13th *Systema Naturae* Gmelin listed all the published names known to him. In addition he named many new species, almost invariably it seems by reference to already published descriptions or illustrations of unnamed organisms, bestowing names on these for the first time. Gmelin also introduced a number of replacement names, where homonymies came to his attention (e.g. *Papilio philetes* Gmelin, 1790 : 2364).

One such work to which Gmelin consistently referred was *Museum Leskeanum*, and he thus gave names to the great majority (but not all) of the unnamed insects described by Zschach. For each new species so named, Gmelin gave a page reference to the description in *Museum Leskeanum*, the Zschach species number, and a virtual copy of the latter's original description. To illustrate this we may take Zschach's *Papilio* 46c, which appears on page 89 of *Museum Leskeanum*, as the fourth species of section 6, the *Danai festivi* (Pl. 3, fig. 6). This should be compared with the entry for *Papilio* no. 887 (Pl. 3, fig. 7) which appears on page 2289 of Gmelin *in* Linnaeus, under the *Danai festivi*. The latter is the original description of *Papilio claviger* Gmelin; it is clearly drawn directly from Zschach's *Papilio* 46c, Gmelin's description being a barely altered paraphrase.

In 1792 the Dublin Society purchased the Leskean mineral cabinet (for a sum of about £1350; Berry, 1915 : 156); evidently at the same time they also received a large part, if not all, of the Leske zoological and botanical collections (White, 1911 : 8). It thus seems possible that a prime purpose of Karsten's work in cataloguing the Leske collection was to facilitate the sale of the material, at the same time providing a valuable record of a notable museum collection. According to Berry (loc. cit.) the Leske mineral collection was considered one of the finest in Europe in its day, Karsten also being an outstanding mineralogist. Berry unfortunately gives scant information on the Leske zoological material.

In 1813 a catalogue of the natural history specimens in the Dublin Society museum was published; the title page is shown in Pl. 1, fig. 4. It is evident from the short 'Advertisement' by Bernard O'Reilly which prefaces the work (Pl. 4, fig. 10), and also from some of the finer points in the work itself, that whoever made the catalogue was well versed in the systematic natural history of the time. Reference to the works of White (1911), Berry (1915), Praeger (1949) and a number of manuscripts and publications available in the National Museum of Ireland, has shed no light on the catalogue, or on Bernard O'Reilly. Unless proven otherwise, it seems practical to attribute this obscure work to the equally obscure O'Reilly. White (1911 : 10) even goes so far as to say that a directive issued in 1826 to Giesecke to collect insects in county Donegal is 'the first mention of an Entomological Collection in the Museum', when O'Reilly in fact, 13 years earlier, had already listed over 2500 species of insects in the Society's collections! Later, however, White (op. cit.: 14) probably unwittingly refers to O'Reilly's catalogue ('In 1843 the society called for a report . . . it refers . . . also to a Zoological Collection (Leskean) and the catalogue thereof'). The only clue to O'Reilly is a book published in 1818 (*Greenland, the adjacent seas*, . . .) by someone of the same name; Pl. 4, fig. 12 shows the entry for this work in the British Museum (Natural History) catalogue (1910 : 1476), and the vitriolic comment reprinted from the *London Quarterly Review* which accompanies it. Possibly the publication of this book so embarrassed the Dublin Society that all account of O'Reilly was banished from their records. Evidence that the two books are by one and the same O'Reilly is to be found on pages 97–98 of the 'Greenland' volume, where it is stated that 'the arrangement of such animals as I have seen is conformable to the system of Linnaeus, according to the last edition of his celebrated work by Gmelin'. In any event, it is highly unusual to find anyone with a clearly Irish name being credited with any contribution towards the Society's works at that time, the organization then being firmly in the control of the English and Anglo-Irish.

However, comparison of O'Reilly's catalogue with *Museum Leskeanum* indicates that the Dublin Society insect collection in 1813 was very largely made from the Leske collection, which they had purchased 21 years previously. The species numbers and names often correspond exactly with Zschach's work, with the interesting addition of Gmelin's names where Zschach had deferred to name them. At least on some occasions where Gmelin had ignored certain Zschach descriptions, the insect concerned is referred to as a variety of one of the others listed. In the great majority of cases, where in *Museum Leskeanum* the locality is given as '*Exoticus*', in O'Reilly's catalogue this is rendered (needless to say, usually incorrectly) as '*India*'. We may compare the entry shown on page 75 of O'Reilly for *Papilio* 46c (Pl. 3, fig. 8) with the corresponding entries in Zschach and Gmelin (Pl. 3, figs 6, 7). Thus O'Reilly gives for each such species the *Museum Leskeanum* number of Zschach (which, according to the preface, would have been 'affixed to the subject' – see Pl. 4, fig. 10; this is largely confirmed by Kirby, 1869 : 355), the Gmelin name, an English name, and a rendering of '*exoticus*' as '*India*'. This pattern is repeated throughout, with a few minor changes. Perhaps the most interesting variation in the butterflies concerns the first species named from the *Museum Leskeanum* material – no. 6 (Pl. 2, fig. 5). Gmelin called this *Papilio argyrios*, but O'Reilly lists this as '6. P. E. A. Leskii. Leskean Butterfly. *India*' (Pl. 4, fig. 11), this being one of a few species in the catalogue so named after Leske, and which seem to constitute the only recognition of the original source of the bulk of the collection. However, O'Reilly's catalogue appears to provide conclusive proof that the types of the great majority of those Gmelin species, based on the descriptions of insects by Zschach in *Museum Leskeanum*, reached Dublin and were extant in 1913.

W. F. Kirby, who joined the staff of the, by then, Royal Dublin Society in 1867 (Praeger, 1949 : 116; not 1865 as suggested by White, 1911 : 25), presented a paper in 1869 which dealt exclusively with the forgotten works of Gmelin and Zschach (strangely, he also makes no mention of O'Reilly), with the express purpose of generally drawing attention to them, and in particular to provide information about the butterflies (e.g. Pl. 3, fig. 9 shows Kirby's entry for *Papilio* 46c of Zschach). Kirby was an Assistant-naturalist for 12 years at Dublin, and in this paper he notes 'the remains of Leske's collection are in the Museum of the Royal Dublin Society, but the greater number of specimens have succumbed to the ravages of time and neglect'. Kirby lists 25 (correctly 24) butterflies as named by Gmelin, 23 of which were drawn from the 25 species described by Zschach (Kirby wrongly attributes *Papilio sectator* Meerburgh to Gmelin). At this time Kirby had evidently located type-material of some 16 of the latter. At the end of the paper he makes the following comment of general interest: 'I may add that Leske's collection was purchased for the Royal Dublin Society at the end of last century. The *Lepidoptera Heterocera* are all destroyed or seem unrecognisable. There are, however, a good many *Coleoptera*, &c., still in existence.'

While still at Dublin, Kirby produced his *Synonymic Catalogue of Diurnal Lepidoptera* (1871), and also his *Supplement* to this work (1877). Embodied in these are the results of his 1869 paper on the Gmelin names, and also a number of further discoveries or conclusions about this problem which he must have made between 1869 and 1877 (e.g. Pl. 5, figs 13–16, shows various entries concerning *Papilio* 46c). In no case is any further explanation given; as throughout the catalogue, the 'facts' are indicated by bold statement, the surmises or uncertainties by '?'. Shortly after leaving Dublin for London, Kirby (1880) published a catalogue of part of the Lepidoptera collections, as he had left them, at Dublin; strangely, despite the seemingly full treatment given to the butterflies, no mention is made of any Leske specimens or the Gmelin types. The now National Museum of Ireland possesses an interleaved copy of Zschach (1788), annotated in Kirby's handwriting (Pl. 5, figs 17, 18); as surmised above, Kirby evidently did do further work on the Leske material after 1869, the results being included in his catalogue, or its supplement, at various points.

Despite Kirby's hope of stimulating interest in Gmelin, this difficult area of the early literature has still received scant attention from entomologists, probably understandably. The great majority of Gmelin insect species must remain unidentifiable, except in the few instances where type-material may still exist (as it does with at least some of the species named from the Leske material). Probably the single major taxonomic problem, however, concerns primary homonymy; all the Gmelin names appear to have been noted by Sherborn (1902), in his *Index Animalium*, but other cataloguers have taken varying account of them, some ignoring them, others including them. Most curiously, Kirby himself, in his Orthoptera catalogues (published long after his days in Dublin), includes some but not all of the Gmelin species.

Those studying the butterflies have been relatively fortunate in this regard, due to the high proportion of types remaining, and the excellent work of Kirby. Even here, however, little cognisance of Kirby's work and how he was able to achieve his results seems to have been made by most workers, except occasional British entomologists. As an example of the former we may quote Weymer (1910 : 182, footnote), writing in 'Seitz':

> 'Whether *Antirrhea bifasciatus Gmelin* cited by KIRBY in his Catalogue really belongs to the genus *Antirrhea* or even to the American fauna, appears questionable, as it cannot be recognised from the description and the locality was not known to the author. The species is only designated as exotic, and hence may just as well belong to the Indian or African fauna. The original of the description was in the Museum Leskeanum, and no further example is known. According to this description . . . Habitat extra-European (GMELIN, Syst. Nat.)'.

Concerning *bifasciatus*, Kirby (1869 : 360) writes: 'One of the *Satyrinae*. A fragment of one of the types is still in existence; but I have not yet succeeded in identifying it.' Later (1871 : 642), in the Appendix to his catalogue, Kirby indicates that it is a species of *Antirrhea*, placing it after *A. taygetina* Butler. In the Dublin interleaved copy of Zschach (1788), opposite page 91, the following note in Kirby's handwriting appears: '59 P.P. Bifasciatus, Gmel. Syst. Nat. I. 5 p. 2290 n. 893. = Antirrhaea sp.' (Pl. 5, fig. 17).

Sadly, the 'fragment' of *bifasciatus* is no longer to be found in Dublin. However, a number of factors support the possibility that Kirby was right in his placement of this species. First, as will be evident from the list below, Kirby was essentially correct in all his firm identifications of Leskean/Gmelin types, where this has been confirmed by their continued existence. Secondly, where there was doubt about either the types or the placement of the species he always indicated it. Thirdly, the genus *Antirrhea* is a very characteristic S. American group; Kirby (1880 : 295) indicates that the Dublin Museum then possessed four species of *Antirrhea*, all of which are still present and were clearly correctly identified by him. Fourthly, Kirby did not just add the species to the genus, but placed it to follow a well defined species, suggesting that possibly he had been able to do more than just recognize it as a member of *Antirrhea*. Against this it is fair to say that the descriptions of Zschach and Gmelin do not fit any species of *Antirrhea* currently recognized; however, the majority of *Antirrhea* species are rare in collections, and at least three are still only known from uniques, quite apart from *bifasciatus* (Vane-Wright, unpublished). Thus while it is frustrating that the fragmented specimen which convinced Kirby to place *bifasciatus* in *Antirrhea* no longer exists, it would seem that Weymer did not have all the facts at his disposal, and that it may be more prudent to follow the excellent Kirby in this regard, leaving *bifasciatus* Gmelin as a species inquirenda of the genus *Antirrhea*.

As a result of examining the collections at the National Museum, Dublin, I am able to present a revised version of Kirby's 1869 paper, including a large number of further references, lectotype designations, and modern indications of classification. While this will not form the last word on the subject, I hope that it will settle the majority of outstanding problems concerning the Gmelin butterfly names, bringing together most of the relevant information, while also stimulating others to tackle at least the problems of primary homonymy caused by the Gmelin names in their respective groups.

GMELIN'S METHOD OF NUMBERING

Gmelin's numbering of *Papilio* species is bewildering at first sight, but actually is logical and rather neat. His system, which probably applies to all large genera and was doubtless evident to his contemporaries, is worth examining.

His first six species (pp. 2225–2226) are nos. 2, 274, 3, 275, 276, and 4. On page 2248 the numbers run 878, 351, 45, 44, and his final page 2370 carries nos. 875, 876, 268–271, 877, 272, 273. One number is misprinted: '550' for 558 (p. 2301). This reduces to three series of intercalated numbers: 1–273 (omitting 112, *P. enceladus*, an oversight?); 274–877 (omitting 345, 622); and 878–901 (omitting 884). The last series runs serially, but the first two are only approximately so. The first series starts with nos. 2–10, 1, 11–19, 25 . . . and ends with nos. 256–273 (no. 255 on p. 2287 lying between nos. 128–130, 239, 240, 501, 502, 242, 503, 504 and nos. 505–511, 262, 512–515, 885–893, 131).

Gmelin was revising Linnaeus (1767), where the genus *Papilio* included 273 species. To refer back, Gmelin simply used the Linnaean numbers, so his species 1–273 immediately equate with those of Linnaeus, and all except one bear the same names. Their sequence is varied to accord with his new classification requirements, and additions (the second and third series) are interpolated in their proper places. This economical method explains why Gmelin gave no other clarification when he substituted for no. 235 *P. pirithous* Linnaeus, 1767, the replacement name *P. barbarus*, no. 235, on page 2352. No reason for replacing the perfectly valid Linnaean name is apparent, but it was probably in deference to Fabricius, whose junior homonym *P. pirithous* Fabricius, 1775, for an entirely different species he had already cited on page 2281, no. 478. In any case *P. barbarus* Gmelin is clearly an invalid junior objective synonym of *P. pirithous* Linnaeus, 1767.

Apart from that exception in Gmelin's first series there are only a few minor name changes. An interesting case is *P. ancaeus* Linnaeus, 1758 (and 1767, no. 184), which Gmelin (p. 2276, no. 184) notes had been misspelt *ancaea* by Cramer.

To make this abundantly clear he gives the Linnaean reference and number, which is also helpful because the preceding number is 113 and no. 114 is not found until the next opening, while nos. 183 and 185 do not appear until pp. 2320 and 2321. However, as will be seen later, the presence of no. 184 at this point probably caused a misnumbering in the final sequence.

Gmelin's second sequence, nos. 274–877, comprises all other names published to that date. All but two of these had been included in the latest definitive revision of the Insecta, by Fabricius (1787), and Gmelin gives references to that work for each species. Fabricius listed 834 species, but overlooked or merged some 38 of those recognized by Gmelin and Linnaeus, which accounts for most of the discrepancy between 834 and 877. The balance is due to the omission by Gmelin of three numbers (112, 345 and 622), and his inclusion of two further species: no. 355, *P. sectator* Meerburgh, 1775, and no. 601, *P. ceres* Fabricius, 1775.

The final 23 species, which comprise the series nos. 878–901 (omitting 884), were newly named by Gmelin, and are discussed below. The reason for the omission of no. 884 was perhaps that no. 883 came early in the *Danai candidi* on p. 2261, while the next group of the series was not reached until the end of the *Danai festivi* on p. 2289. While looking back to establish the number at the latter point, the number out of sequence to catch the eye was, as noted above, no. 184. Gmelin may have misread this as 884 and then proceeded with no. 885.

A NOTE ON SINGLE TYPE-SPECIMENS AND LECTOTYPE DESIGNATIONS

An ambiguity has arisen from certain wording in the *International Code of Zoological Nomenclature*, regarding the interpretation of holotypes and syntypes, and the necessity or otherwise of fixing lectotypes in certain instances. This concerns the situation where a species is described from an unstated number of specimens, with no original published designation of a specific 'type' or holotype, and where now only one original specimen is to be found. Some workers, perhaps a majority, regard such specimens as 'unique' types, and so treat them as holotype specimens. Dr Roger Crosskey has put forward an eloquent case in the hope of formalising this 'holotypist' approach; the reader is referred to the statement by Crosskey (1974 : 272) for details of the situation and his argument. However, the present author has always used the alternative interpretation: if there is no objective evidence in an original description as to whether the original type-series was multiple or not, then in such cases, even if only one original specimen can now be found, it requires eventual fixation as a lectotype. In the meantime such a specimen remains a type of indefinite status, or may be regarded as a lone syntype in a series of unknown size (which includes, of course, the implicit possibility that the original series did only consist of one specimen).

My interpretation of the *Code* is based on the operational principle that if it can be unequivocally inferred from the original description that there is a unique or 'type' specimen, then that specimen is the holotype, but in all other cases, to provide a specified unique type for the taxon concerned, a subsequent lectotype designation is necessary, even if only a single original specimen can now be found.

Crosskey (op. cit.) lists a number of objections to such a procedure, or at least to the designation of surviving unique specimens of the nature under discussion, as lectotypes. One objection is that other workers, seeing a lectotype to have been fixed, will expect at least one paralectotype to exist also. My use of the term lectotype is to indicate a clear fixation of a unique type-specimen to serve for nomenclatorial purposes, where no such fixation is explicit or implicit in the text of the original description concerned. In designating unique specimens of the sort under discussion as lectotypes, it should always be indicated that only the single specimen is known to exist, and that the size of the original series was quite unspecified.

Another point advanced by Crosskey is that, especially with older authors where most of these problems occur, it is rare to find more than one surviving type-specimen, suggesting that most old taxa were based on single specimens. This may be very true in a group like the Diptera, but it is a much less safe assumption with the Lepidoptera. Most of the taxa dealt with in this paper are of considerable antiquity. Analysis of the original descriptions of 56 species noted here reveals the following: only three have explicit holotypes; 38 are based on a completely undefined number of specimens; 11 are clearly based on series of more than one specimen, but the number of specimens is in no way indicated; and four are based on syntypic series with the included number of specimens being indicated. Of the 38 taxa with an undefined number of specimens in the original series, I have been unable to trace any type-specimens in 34·2 per cent. of cases, one specimen in 55·3 per cent. of cases, and two or more type-specimens in 10·5 per cent. of cases. Of the 11 species with unstated, but clearly multiple original series, I have been unable to find any type-specimens in 45·5 per cent. of cases, one specimen in 27·25 per cent. of cases, and more than one in 27·25 per cent. of cases. I think these figures show that in the case of butterflies, a large number of errors would be made if it were regularly assumed that a single surviving specimen indicated that the taxon in question was originally based on that specimen alone. With butterflies, the long history of private collectors, private loans, purchases, auctions, removal of labels, and even theft, has conspired to cloud the picture with uncertainty. In addition, some authors (e.g. Hans Fruhstorfer) are bemusing in their inconsistency with regard to their original publications, and the retrospective criteria now applied to decide type status. In this context, one need only think of the nightmare created by 'Seitz' for the conscientious museum worker concerned about applying the correct status to the types in his care.

In a final, and most significant argument, Crosskey claims that by designating a unique specimen as a lectotype, one is 'unnecessarily tying the hands of future zoologists', should other original specimens later be found to exist. Certainly, lectotype designations are final, if correctly made, but I believe that publishing accounts in which supposedly unique specimens are stated to be holotypes is operationally equally final. Such 'holotype designation' would always tend to be regarded as a 'previously valid type restriction' by subsequent workers. However, the whole question of restricting the freedom of future zoologists raises a more fundamental problem and division. The present author is a somewhat unwilling convert to the 'lectotype designation cult'. My original viewpoint was that if a syntypic series existed, and if in the opinion of a subsequent worker all the syntypes applied to the same taxonomic grouping concept, then a lectotype designation served no useful function, but was indeed undesirable, since it *tied the hands of future zoologists*. Should such a series at a later date be deemed to be mixed (rare for butterflies, common for Diptera), then the zoologist concerned would be free to make the most appropriate choice in selecting a lectotype. However, I am now largely persuaded that, provided lectotype designations are not made casually (as for instance in type-catalogues, or figure legends, both frequent and regrettable practices), it is better that a taxonomist in doing work of a revisional nature should unequivocally fix definite, single type-specimens for all taxa in question, wherever possible, so as to reduce present and future uncertainty to a minimum. I am prepared to accept this in the current type-oriented approach to zoological nomenclature, since it seems inconsistent to advocate all new taxa to have fixed holotype specimens, yet wish to retain old type-series wherever possible as syntypic, 'just in case'. In fact, if we are seriously to consider flexibility for future zoologists, it would arguably be better to abandon the holotype concept altogether, and introduce an extended lectotype concept for use where necessary (this could include the neotype concept); but the present system has become far too well entrenched for the present author to have any great desire to see it changed.

Accepting the present system, and as an 'unwillingly converted lectotyper', I therefore regard the proposal advanced by Crosskey as neither fitting with one ideal nor the other. If lectotypes are to be designated as a matter of course where syntypic series exist, regardless of any doubt as to the conspecificity of the specimens, then in my opinion lectotypes should also be fixed for single extant specimens where there is no indication of unique status in the original description, provided this is done explicitly, and only in taxonomic treatments of an essentially revisional nature.

In conclusion to this discussion, I think it fair to say that in practice the two interpretations will nearly always lead to the same result. Rather than press for uniformity on a matter like this, I believe that it may be better not to tie the hands of *present* zoologists, allowing them the flexibility to apply whichever procedure seems the most sensible to them. What seems sensible in one group, and not so sensible in another, will depend largely on the history of collecting and museum techniques previously applied, and also on the nature of the particular organisms in question.

THE BUTTERFLIES NAMED BY GMELIN FROM *MUSEUM LESKEANUM*

The Gmelin butterflies named by reference to *Museum Leskeanum* are dealt with in their original order of presentation. For each, the presently accepted name is given centrally, in bold type, together with an indication of its family, followed by full species and important literary synonymy. Under a heading giving the original Gmelin name, there follows a brief taxonomic discussion in each case, with observations on the most likely type-locality, and including either a lectotype or neotype designation where appropriate. In a number of instances lectotypes are also designated for synonymous taxa described by other authors.

The abbreviations listed below are used for depositories of type-material.

BMNH	British Museum (Natural History), London, England.
CM	Carnegie Museum, Pittsburgh, U.S.A.
LC	Linnaean Collection, Linnean Society of London, England.
MLU	Museum Ludovica Ulrica, Uppsala, Sweden.
MNHN	Muséum national d'Histoire naturelle, Paris, France.
MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin, D.D.R.
NMI	National Museum of Ireland, Dublin, Eire.
RNH	Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands.
RSM	Royal Scottish Museum, Edinburgh, Scotland.
USNM	National Museum of Natural History, Washington D.C., U.S.A.
ZI	Zoological Institute, Leningrad, U.S.S.R.

Alcides orontes (Linnaeus) [Heterocera: Geometroidea, Uraniidae]

Papilio orontes Linnaeus, 1763*a* : 19. [Ambon] (MLU).
Papilio orontes Linnaeus, 1763*b* : 402. 'In India'.
Papilio orontes; Clerck, 1764 : pl. 26, fig. 1.
Papilio Equites Achivi sp., Zschach, 1788 : 87, no. 6*, pl. 2, fig. Glossata 6. 'Exoticus'.
Papilio argyrios Gmelin, 1790 : 2248., no. 878. 'Extra Europam' [? Ambon] (formerly in NMI; type-material destroyed). Synonymy by Kirby, 1892 : 16.
Papilio leskii O'Reilly, 1813 : 73, no. 6, nomen nudum. 'India'. [This name is objectively synonymous with *argyrios* Gmelin, being based on the same material.]
Alcides orontiaria Hübner, [1822] : pl. [218], figs 3, 4. [No locality.] (Type-material lost.) Synonymy from Dalla Torre, 1924 : 6; correct date: Hemming, 1937*b* : 149.
Alcidis orontiaria Hübner, [1823] : 289. Correct date: Hemming, 1937*b* : 149.
Papilio argyrios Gmelin; Kirby, 1869 : 356.
Nyctalemon argyrios (Gmelin); Kirby, 1871 : 638.
Alcides orontes (Linnaeus); Kirby, 1880 : 335.
Alcidis orontes (Clerck); Kirby, 1892 : 16.
Papilio orontes Linnaeus; Sherborn, 1902 : 702.
Alcidis orontes (Clerck); Dalla Torre, 1924 : 6; Seitz, 1929 : 94.

Papilio argyrios Gmelin. I have been unable to trace any type-material in Dublin. Kirby (1880 : 335) lists one specimen of *Alcides orontes* Linnaeus, which is extant, but lacks data. It seems unlikely that this specimen was part of the Leske collection; curiously, no Leskean butterfly specimens are listed anywhere in Kirby's 1880 paper, and presumably the same would apply to this moth species. A good original figure is given by Zschach (1788 : pl. 2, fig. Glossata 6); the same plate is reproduced in Karsten (1789). The original most probably came from Ambon, and *argyrios* may thus be regarded as a strict synonym of *orontes* Linnaeus (Corbet, 1949 : 192–193, summarises information relevant to determining the type-locality of *orontes*).

Papilio leskii O'Reilly, noted in the synonymy above, is best regarded as a nomen nudum. If, however, it is treated as an available name, it falls as an objective synonym of *argyrios*.

Some confusion appears to exist in the literature concerning the authorship, date and even genus of *orontes* Linnaeus. The question of the spelling *Alcides*

v. *Alcidis* appears to have been settled finally by Hemming (1937*b* : 149), in favour of the former. The authorship and date problem is more vexed. A number of workers have attributed the name *orontes* to Clerck, 1759. It would appear, however, that these workers overlooked the division of Clerck's *Icones* into two parts; the title page of the second part, in which the original illustration of *orontes* appears, is dated 1764. The earliest dated work to mention *orontes* is the dissertation delivered by Boas Johansson in 1763, *Centuria Insectorum Rariorum* (Linnaeus, 1763*a*), which was also reprinted the same year in *Amoenitates Academicae* (Linnaeus, 1763*b*). It is considered normal to regard the authorship of new names in such dissertations as being that of Linnaeus, who was apparently responsible for most of the content of these works. Both these 1763 publications, however, make clear reference to 'Clerk t.26 f.l'; Higgins (1970) has suggested from other evidence that the component plates of Clerck's work may have been issued continuously, perhaps separately, from 1759 to 1764. It might therefore be correctly interpreted that Clerck had already published *orontes* prior to Johansson and Linnaeus. It would seem preferable, however, in the absence of proof to the contrary, to continue to regard the proper date of publication of the second part of Clerck's *Icones* as 1764; prior 'publication' probably consisted of private circulation of the separate plates, as they were completed, among friends and co-workers. It may also be noted that Hemming (1967 : 288, entry for *Metamandia*) was of the categorical opinion that all names published in Clerck's *Icones* should be attributed to Linnaeus.

I have followed Seitz (1929) with regard to the determination of these moth species, but any future reviser should carefully consider the type-material and original figures of *orontes*, *argyrios* and *orontiaria*.

Pierella hyalinus hyalinus (Gmelin) [Satyridae]

(Pl. 6, fig. 19)

[*Papilio lena* Linnaeus; Cramer, [1780] : 5, pl. 291, figs A, B. 'Suriname'. Misidentification.]
Papilio parnassi sp., Zschach, 1788 : 88, no. 26*. 'Exoticus'.
Papilio hyalinus Gmelin, 1790 : 2259, no. 879. NEOTYPE ♂, SURINAM (BMNH), here designated [examined].
Papilio hyalinus; O'Reilly, 1813 : 74, no. 26. 'India'.
Papilio hyalinus Gmelin; Kirby, 1869 : 356; 1871 : 637.
Pierella hyalinus (Gmelin); Kirby, 1877 : 698; Kirby, 1880 : 295.
Pierella hyalinus hyalinus (Gmelin); Brown, 1948 : 63.

Papilio hyalinus Gmelin. No original type-material seems to have survived at Dublin, evidently having been destroyed sometime after 1813, and before Kirby's arrival in 1867. In the interleaved copy of Zschach at Dublin, Kirby first entered '? = *Antirrhaea philoctetes* L.'; subsequently he deleted this and wrote ' = *Pierella dracontis*'. The most probable original type-locality for *hyalinus* is Surinam.

Kirby (1877 : 698) placed *dracontis* Hübner ([1819] : 53) as a junior synonym of *hyalinus*. Subsequently Brown (1948) has used these names, respectively, for the Amazon and Guyana region subspecies of *hyalinus* which he recognized.

Brown (op. cit.) gives good reasons for believing the type-locality of *hyalinus* to be Surinam. He also discusses the early confusion between *lena* Linnaeus and *hyalinus*, and the later application of the name *hyalinus* by other workers to insects from the Amazon and Trinidad. Brown indicates the illustration by Cramer (1780 : pl. 291, figs A, B) of a butterfly from Surinam (misidentified by Cramer as *lena*) to be the earliest description of this species as he interprets it; the specimen believed to have been illustrated by Cramer is now in the BMNH (see the general notes on Cramer, p. 55). Apart from the earlier confusion over species and subspecies names, Mr M. P. Clifton (unpublished work) is of the opinion that a complex of sibling species is involved in this group. In order to stabilize existing usage, the male specimen, believed to have been illustrated by Cramer as referred to above, is hereby designated neotype of *Papilio hyalinus* Gmelin. It bears the following labels: /Neotype/Surinam Coll. Lenep/Dracontis Hüb./H. Dracontis Hüb Lena Cramer/Felder Colln./Rothschild Bequest BM 1939–1/Papilio hyalinus Gmelin, det. R.I.V–W./, and is illustrated on Pl. 6, fig. 19.

In this context it may be interesting to note *Papilio sectator* Meerburgh (1775 : pl. 10, [83]). Kirby (1869 : 356) attributed this Meerburgh name (but not others) to Gmelin (1790 : 2250), perhaps assuming that Meerburgh had illustrated the species but not named it. Kirby (1871 : 642) later corrected this mistake, noting *sectator* Meerburgh as a junior synonym of true *Pierella lena* (Linnaeus).

Delias isse isse (Cramer) [Pieridae]

Papilio isse Cramer, 1775 : 87, pl. 55, figs E, F. 'Indes Orientales' [? AMBON] (type-material lost).
Papilio isse Cramer; Stoll, 1781 : 95, pl. 339, figs C, D. 'Amboina'.
Papilio Danai candidi sp., Zschach, 1788 : 88, no. 31*. 'Exoticus'.
Papilio bicolor Gmelin, 1790 : 2261, no. 880. LECTOTYPE ♂, 'extra Europam' [? AMBON] (NMI), here designated [examined]. Synonymy by Kirby, 1869 : 357.
Papilio bicolor; O'Reilly, 1813 : 74, no. 31. 'India'.
Pieris isse (Cramer); Kirby, 1869 : 357.
Delias isse (Cramer); Kirby, 1871 : 476; Kirby, 1880 : 321; Talbot, 1929 : 88.
Delias isse isse (Cramer); Talbot, 1937 : 473; D'Abrera, 1971 : 148.

Papilio bicolor Gmelin. A single male specimen in Dublin bears the labels /31/Isse, Cram. (31) (Bicolor, Gmel, type specimen)/, the latter in Kirby's handwriting on blue paper; this specimen is hereby designated lectotype of *Papilio bicolor* Gmelin, and has been labelled accordingly. It lacks the antennae and abdomen, but is otherwise in fair condition. The lectotype fits the description given by Talbot (1937 : 473) for *Delias isse isse* (Cramer), known from Ambon, Ceram, Gisser and Banda. Both *isse* and *bicolor* were most probably obtained from Ambon.

Papilio isse Cramer. A male of this species in the BMNH, ex Felder collection, bears a 'Cramer label' (see p. 56) for *isse*. This specimen does not, however, correspond as closely to the original Cramer figure as two other ex Felder specimens which bear no other data. The BMNH does not appear to have the types of *Papilio* *crocale* or *P. celmus*, described on the same page as *isse*, all from specimens loaned to Cramer by B. Vriends of Haarlem (Cramer, 1775 : 87). It would appear possible that the 'Cramer label' was attached to a fresh specimen obtained at a later date. Stoll (1781) described the female of *isse* from one or more specimens collected on Ambon, in the collection of Baron Rengers. The BMNH collections include several female specimens of *isse*, ex Felder, which bear no further data. It is probable that some of these, and the males noted above, originated from the Rengers collection, or came from the same source.

Delias ceneus ceneus (Linnaeus) [Pieridae]

Papilio ceneus Linnaeus, 1758 : 487. LECTOTYPE ♀, 'in Indiis' [AMBON] (MLU), here designated. Correct type-locality: Corbet, 1949 : 195.
[*Papilio hyparete* Linnaeus; Clerck, 1764 : pl. 38, two figures at lower margin. Misidentification.]
Papilio hyparete Linnaeus, varietas an Femina?; Linnaeus, 1764 : 247.
Papilio caeneus Linnaeus; Linnaeus, 1767 : 766.
[*Papilio hyparete* Linnaeus; Cramer, [1779] : 30, pl. 210, figs A, B. 'Amboina'. Misidentification.]
[*Papilio hyparete* Linnaeus; Stoll, [1781] : 95–6, pl. 339, figs E, F. 'Amboina'. Misidentication.]
Papilio Danai candidi sp., Zschach, 1788 : 88, no. 32.* 'Exoticus'.
Papilio discors Gmelin, 1790 : 2261, no. 881. LECTOTYPE ♂, 'extra Europam' [? AMBON] (NMI), here designated [examined]. Synonymy by Kirby, 1871 : 476.
[*Papilio antonoe* Cramer; Herbst, 1792 : 126, pl. 100, figs 1, 2, 3, 4. Misidentification.]
Papilio plexaris Donovan, 1805 : pl. 18, two figures. 'Botany Bay' [? AMBON] (type-material lost). Synonymy from Talbot, 1937 : 544.
Papilio discors; O'Reilly, 1813 : 74, no. 32. 'India'.
Pieris philyra Godart, 1819 : 150. LECTOTYPE ♀, [AMBON] (MLU), here designated. Synonymy from Talbot, 1937 : 544.
Cathaemia anthyparete Hübner, [1819] : 92. AMBON (type-material lost). Synonymy from Talbot, 1937 : 544.
Pieris discors (Gmelin); Kirby, 1869 : 357.
Delias caeneus (Linnaeus); Kirby, 1871 : 476; Kirby, 1880 : 321; Talbot, 1929 : 88.
Delias caeneus caeneus (Linnaeus); Talbot, 1937 : 543.
Delias ceneus ceneus (Linnaeus); Corbet, 1949 : 195.
Delias caeneus caeneus (Linnaeus); D'Abrera, 1971 : 150.

Papilio discors Gmelin. Two specimens, a pair, exist in the NMI collection; they appear above the drawer label /Types of Discors, Gmel./. One specimen has no further data, while the other simply bears the addition /32/. The latter specimen, the male, is hereby designated lectotype of *Papilio discors* Gmelin, and has been labelled accordingly. The female (the 'altero sexu' of the original description) is similarly designated paralectotype; it lacks the abdomen. The lectotype is in fair condition, but as with most of the Leske material, is now very faded. Probably from Ambon, *discors* fits the description given by Talbot (1937 : 544), and is thus best treated as strictly synonymous with *ceneus ceneus* (Linnaeus). It is interesting to note that Zschach recognized the sexual dimorphism of this species.

Papilio ceneus Linnaeus. Corbet (1949 : 195) summarizes his work on the type-material of this species. I hereby designate the specimen in MLU as dealt with by Corbet (loc. cit.) and illustrated by Clerck (1764 : pl. 38, two lowermost figures, as *Papilio hyparete*, in part), lectotype of *Papilio ceneus* Linnaeus.

Papilio plexaris Donovan was described from at least two male specimens from 'Botany Bay'. Donovan's natural history collection was auctioned by Stevens in 1818 (Horn & Kahle, 1935 : 60); the types are presumed to be lost.

Pieris philyra Godart was described by reference to Cramer's (1779), Stoll's (1781) and Herbst's (1792) figures of '*hyparete*', and also, apparently, from material actually studied by Godart. In addition, Godart gives a first reference to '*Papilio Hyparete. Variet. an fem.?* Linn. *Mus. Lud. Ulr. p. 247.*'. As summarised by Corbet (1949), this last reference can be traced to the lectotype of *Papilio ceneus* Linnaeus, as designated above. To confirm existing synonymy, I hereby designate the lectotype specimen of *Papilio ceneus* Linnaeus as, additionally, the lectotype of *Pieris philyra* Godart, of which the latter thereby becomes an objective synonym. The specimens represented by the illustrations of Cramer (1779 : pl. 210, figs A, B), Stoll (1781 : pl. 339, figs E, F) and Herbst (1792 : pl. 101, figs 3, 4, 5) are designated paralectotypes. Of these it is interesting to note that while the figures of Cramer and Stoll, under the misidentified name *hyparete*, do actually refer to *ceneus* (= *philyra*), the figures of Herbst actually refer to true *hyparete* Linnaeus. Herbst did, however, illustrate *ceneus* on the previous plate (pl. 100, figs 1, 2, 3, 4), this time under the misidentified name *antonoe* Cramer. A pair of specimens in the MNHN have been recognized as paralectotypes of *Pieris philyra*, and labelled accordingly. A male *ceneus* in the Rothschild collection, BMNH, bearing the 'Cramer label' /No. 32. HYPARETE. Cr. III 210, A.B. & IV 339, C.D./, is probably a van Lennep specimen as referred to by Cramer (1779 : 30), but is evidently not the one figured by Cramer on plate 210, and has not therefore been designated as a paralectotype.

Cathaemia anthyparete Hübner was named by reference to 'Hyparete Cram. 210 A.B., & 339 E.F.'. The figures on plate 339 (Stoll, 1781) are from one or more female specimens received from Ambon by Baron Rengers (Stoll, op. cit.: 96); the material is apparently lost or unrecognizable.

The name *Papilio ceneus* Linnaeus might be regarded as a senior primary homonym of the name *Papilio cenea* Stoll, as published in 1790 in the *Supplement* to 'Cramer'. The name *cenea* Stoll is in current usage for the southern African subspecies of *Papilio dardanus* Brown. A large volume of very important genetical and other biological work has been done on the races of this polymorphic mimic species, and a strong case could be made out for conserving the junior homonym, *Papilio dardanus cenea* Stoll. Fortunately, as Charles Cowan has pointed out to me, Ceneus is a girl's name, while 'cenea' is not a Latin word but an arbitrary combination of letters. Therefore no question of homonymy arises, and both names can stand.

Delias dorimene (Stoll) [Pieridae]

Papilio dorimene Stoll, [1782] : 201, pl. 387, figs C, D. Holotype ♂, AMBON (type-material lost). Correct author and date: Hemming, 1958 : 43.

Papilio Danai candidi sp., Zschach, 1788 : 88, no. 34*. 'Exoticus'.

Papilio fuliginosus Gmelin, 1790 : 2261, no. 882. LECTOTYPE ♂, 'extra Europam' [? AMBON] (NMI), here designated [examined]. Synonymy by Kirby, 1869 : 357.
Papilio dorimene Cramer; Herbst, 1792 : 132, pl. 102, figs 6, 7.
Papilio fuliginosus; O'Reilly, 1813 : 74, no. 34. 'India'.
Pieris ageleis Godart, 1819 : 113, 147. AMBON (type-material lost). Synonymy from Talbot, 1937 : 447.
Pieris dorimene (Cramer); Kirby, 1869 : 357.
Delias dorimene (Cramer); Kirby, 1871 : 476.
Delias dorimene avenda Fruhstorfer, 1912*b* : 5. LECTOTYPE ♂, CERAM (BMNH), here designated [examined]. Synonymy from Talbot, 1937 : 447.
Delias dorimene (Cramer); Talbot, 1929 : 88; Talbot, 1937 : 447, 587; D'Abrera, 1971 : 146.

Papilio fuliginosus Gmelin. A single male specimen in Dublin bears the labels /34/ Type of Fuliginosus Gmel./; this specimen is hereby designated lectotype of *Papilio fuliginosus* Gmelin, and has been labelled accordingly. The specimen lacks the abdomen, but is otherwise in fair condition. The lectotype probably came from Ambon; it fits the description given by Talbot (1937), who did not recognize any subspecies of *dorimene*, which is found on the S. Moluccan islands of Ceram, Gisser, Saparua and Ambon. As also noted by Talbot (op. cit.: 587), *fuliginosus* (Gmelin) preoccupies *Delias fuliginosus* Kenrick, 1909.

Papilio dorimene Stoll was apparently described from a single male specimen, received from Ambon by Raye de Breukelerwaert. This specimen, the holotype, illustrated in Stoll's original figures, appears to be lost; no certain Stoll or Cramer specimens of this taxon exist in the Rothschild collection (BMNH), or in Leiden (RNH), where such might have been expected.

Pieris ageleis Godart was described by reference to the original description of 'Papillon dorimene Cramer', figures in Herbst (1792), and specimens examined by Godart himself. None of Godart's specimens can be traced in Paris or Edinburgh and, as noted above, the specimen illustrated by Stoll (1782 : pl. 201, figs C, D) is also apparently lost or destroyed.

Delias dorimene avenda Fruhstorfer was described from a pair of specimens in the Fruhstorfer collection from 'Ceram', the male collected by Ribbe, the female by Kühn. A single male now in the BMNH bears the labels /Type/Ceram Jllo C. Ribbe 1884/dorimene avenda Frhst [in Fruhstorfer's handwriting]/Fruhstorfer Coll BM 1937–285/; this specimen is hereby designated lectotype of *Delias dorimene avenda* Fruhstorfer, and has been labelled accordingly (type no. Rh 17308). A single female bearing the labels /Type/O. Ceram Fruhstorfer/avenda Fruhst. ♀ [in Talbot's handwriting]/Frushtorfer Coll BM 1937–285/, is similarly designated paralectotype.

Eurema hecabe hecabe (Linnaeus) [Pieridae]

Papilio hecabe Linnaeus, 1758 : 470. LECTOTYPE ♀, 'in Asia' [CHINA: Canton] (LC), here designated [examined]. Correct type-locality: Corbet, 1941*b*; 1942; 1949.
Papilio Danai candidi sp., Zschach, 1788 : 89, no. 35*. 'Exoticus'.
Papilio chrysopterus Gmelin, 1790 : 2261, no. 883. LECTOTYPE ♂, 'extra Europam' [? S. E. CHINA] (NMI), here designated [examined]. **Syn. n.**
Papilio chrysopterus; O'Reilly, 1813 : 74, no. 35. 'India'.

Papilio chrysopterus Gmelin; Kirby, 1869 : 357.
Eurema chrysopterus (Gmelin); Kirby, 1871 : 450.
Terias blanda acandra Fruhstorfer, 1910 : 169. Holotype ♀, Hong Kong (BMNH), [examined]. Joicey & Talbot, 1924 : 533; synonymy from Talbot, 1935 : 553.
Papilio chrysopterus Gmelin; Talbot, 1935 : 622.
Papilio hecabe Linnaeus; Corbet, 1941*b* : 27.
Eurema hecabe hecabe (Linnaeus); Corbet, 1949 : 494.

Papilio chrysopterus Gmelin. A single male specimen in Dublin bears the labels /Type of Chrysopterus, Gmel. [in Kirby's handwriting, on blue paper] /52 : 1925/ Examined by H. T. G. Watkins in 1925 and pronounced to be synonymous with *Terias hecabe hecabe* (Linné) from S. China. ♂/. This specimen is hereby designated lectotype of *Papilio chrysopterus* Gmelin, and has been labelled accordingly; although lacking both antennae, it is otherwise in fair condition.

H. T. G. Watkins, in collaboration with N. D. Riley, evidently closely compared the lectotype of *chrysopterus* with material of *hecabe* in the BMNH; a male *hecabe* from Hainan is labelled /*chrysopterus*, Gmel. compared with type 12.v.1925. N.D.R., H.W./, and a specimen from Macao, S. China, is similarly labelled /probably nearest to *hecabe* type/. All three specimens are virtually identical. However, the Hainan population is currently dealt with as a separate subspecies, *E. hecabe subdecorata* (Moore) (Corbet & Pendlebury, 1932 : 160). It would seem much more likely that Leske's material would have come from one of the trading ports on the China coast, than from the little known island of Hainan. The type-locality of *hecabe* has also been the subject of doubt. Corbet (1941b; 1942; 1945; 1949) has shown it to be Canton; I therefore propose to regard Canton as the type-locality of *chrysopterus* Gmelin, which thereby becomes a strict synonym of *Eurema hecabe hecabe* (Linnaeus).

Despite the fact than many of the Leske type-specimens evidently came from Ambon, in this case it is clear, from examination of specimens, that *chrysopterus* does not represent the race of *hecabe* from that island (*E. h. diversa* (Wallace)).

Papilio hecabe Linnaeus. Corbet has studied the type-material of this species in considerable detail. It remains only to provide a formal lectotype designation. I hereby designate the female specimen in the Linnaean Collection, London, which bears the labels /Hecabe 763/74. Hecabe/, as lectotype of *Papilio hecabe* Linnaeus. The lectotype is illustrated by Corbet & Pendlebury (1956 : pl. 29, fig. 6).

Euploea phaenareta phaenareta (Schaller) [Danaidae]

Papilio sp., Seba, 1765 : 25, pl. 19, figs 13, 14.
[*Papilio midamus* Linnaeus; Cramer, [1780] : 131–2, pl. 266, figs A, B. 'Amboina'. Misidentification.]
Papilio phaenareta Schaller, 1785 : 177, pl. 5, figs 1, 2. [? Ambon] (type-material destroyed).
Papilio Danai festivi sp., Zschach, 1788 : 89, no. 46*. 'Exoticus'.
Papilio affinis Gmelin, 1790 : 2289, no. 885. LECTOTYPE ♀, 'extra Europam' [? Ambon] (NMI), here designated [examined]. Synonymy by Kirby, 1869 : 358. [Junior primary homonym of *Papilio affinis* Fabricius, 1775.]
[*Papilio midamus* Linnaeus; Herbst, 1793 : 12, pl. 119, figs 1, 2. Misidentification.]
Papilio affinis; O'Reilly, 1813 : 74, no. 46. 'India'.

Trepsichrois alea Hübner, 1816 : 16. Ambon (type-material lost). Synonymy from Bryk, 1937 : 370.
Danais prothoe Godart, 1819 : 177. LECTOTYPE ♂, Ambon (RSM), here designated [examined]. Synonymy from Grimshaw, 1898 : 2.
Euploea phaenareta (Schaller); Kirby, 1869 : 358.
?*Euploea affinis* (Gmelin); Kirby, 1871 : 17.
Euploea phaenareta (Schaller); Kirby, 1871 : 639.
Euploea phaenareta phaenareta (Schaller); Bryk, 1937 : 369; D'Abrera, 1971 : 190.

Papilio affinis Gmelin. A single female specimen in Dublin bears the label /46 Phaenareta, Schall. type of Affinis, Gmel./, in Kirby's handwriting. This specimen is hereby designated lectotype of *Papilio affinis* Gmelin, and has been labelled accordingly. This specimen which, apart from lacking the abdomen, is in fair condition, corresponds closely with material of the nominate subspecies of *Euploea phaenareta* from Ceram and Ambon (D'Abrera, 1971 : 190), probably coming, in fact, from the latter island. The 'sexus alter' of the original description appears to have been destroyed; no other specimens of *phaenareta* are now present in the NMI. The specific name *affinis* Gmelin is in any case invalid, being a junior primary homonym of *Papilio affinis* Fabricius.

Papilio phaenareta Schaller was described from at least one male specimen studied by Schaller, and by reference to female specimens illustrated by Seba (1765) and Cramer (1780), the last with some reservation. Schaller's material most probably came from Ambon, as with most other contemporary material from the Moluccas. The Schaller collection has been destroyed (Horn & Kahle, 1936 : 241).

Trepsichrois alea Hübner was described by reference to '*midamus* Cram. 266. A.B.'. Cramer's material (1780 : 132, pl. 266, figs A, B) came from Ambon. An ex Felder specimen of *phaenareta* in the Rothschild collection (BMNH), which bears the 'Cramer label' /No. 62. Midamus. Cr.III.266.A.B./ and a Felder /Coll. Lenep/ label, might be the specimen originally illustrated. However, I have compared this specimen with Cramer's original pattern plate, but find the finer details, especially on the underside, just too different to be confident of such an identification.

Danais prothoe Godart was described by reference to the misidentified illustrations of '*midamus*' given by Cramer (1780) and Herbst (1793), in addition to one or more specimens studied by Godart himself. A single male specimen now in the RSM, ex Dufresne collection, bears the label /Amboine/ (Grimshaw, 1898 : 2). This specimen, which I have examined in Edinburgh, is hereby designated lectotype of *Danais prothoe* Godart.

Danaus limniace exoticus (Gmelin) **stat. n., nom. rev.** [Danaidae]

(Pl. 6, figs 21, 22)

Papilio Danai festivi sp., Zschach, 1788 : 89, no. 46b*. 'Exoticus'.
Papilio exoticus Gmelin, 1790 : 2289, no. 886. LECTOTYPE ♂, 'extra Europam' [? Ceylon] (NMI), here designated [examined].
Papilio exoticus; O'Reilly, 1813 : 74, no. 46b. 'India'.

Danais leopardus Butler, 1866 : 52. LECTOTYPE ♂, INDIA (BMNH), here designated [examined]. **Syn. n.**
Danaus limniace (Cramer); Kirby, 1869 : 358.
?*Danus exoticul* [sic] (Gmelin); Kirby, 1871 : 8.
Danaus limniace (Cramer); Kirby, 1871 : 639.
Danaida limniace mutina Fruhstorfer, 1910 : 204, pl. 78, row a. LECTOTYPE ♂, CEYLON (BMNH), here designated [examined]. **Syn. n.**
Danaus limniace leopardus (Butler); Talbot, 1943 : 134; Talbot, 1949 : 31.
Danaus limniace mutina (Fruhstorfer); Woodhouse, 1950 : 29.
Danais limniace (Cramer); Wynter-Blyth, 1951 : 67.
Danaus limniace leopardus (Butler); Bailey, 1951 : 74; Corbet & Pendlebury, 1956 : 440.

Papilio exoticus Gmelin. A single male specimen in Dublin bears the label /46b Zschach. Probably Leskean type of P.exoticus Gmel./, in Kirby's handwriting, on blue paper. Despite Kirby's doubt, the original description by Zschach of the male scent organ ('*squama subtus*') of this species, makes it fairly certain that this specimen was part of the type-material of *exoticus*. This specimen is, therefore, hereby designated lectotype of *Papilio exoticus* Gmelin, and has been labelled accordingly. It is generally in fair condition, but lacks the head.

P. exoticus fits the diagnosis given by Talbot (1943 : 134) for *Danaus limniace leopardus* (Butler), and is very similar to many specimens in the BMNH of this subspecies, from Ceylon and India. It clearly does not belong to any of the other *limniace* subspecies enumerated by Talbot, both from examination of the BMNH collection, and study of Talbot's *Revisional Notes*. At the subspecies level this then places *leopardus* Butler and *mutina* Fruhstorfer in the synonymy of *exoticus;* lectotype designations for these taxa are appended below. It should be noted that the lectotypes of *exoticus* and *mutina* (Pl. 6, fig. 21) agree well with each other, and with the great majority of specimens from the Indian region dealt with by Talbot as *leopardus*. All three type-specimens of *leopardus* (Pl. 6, fig. 22), however, are atypical of the Indian subspecies, not showing any fusion of the fore wing posterior stripes or distal spot (Talbot, 1943), and thus not actually fitting Talbot's diagnosis for subspecies *leopardus*. However, the types appear to fall within the range of variation of the Indian subspecies, and so I am placing all three names, *exoticus*, *leopardus* and *mutina*, in synonymy. If further subdivision ever proves necessary, it would appear best to consider the lectotype of *exoticus* as being from Ceylon.

The name *limniace leopardus* (Butler) might have qualified for conservation under the reworded Article 23b of the *International Code* as advocated by Mayr et al. (1971), but this was rejected by the Zoological Congress held at Monaco. Further, as the type-specimens of *leopardus* are atypical of the Indian region subspecies, and the three most recent major books on Indian region butterflies use different names (Talbot, 1949; Woodhouse, 1950; Wynter-Blyth, 1951), it seems most straightforward to adhere to priority.

Danais leopardus Butler was described from three syntypic specimens, from 'India'. All three are extant in the BMNH, comprising one male and two females. The male bears the following labels: /Type [red]/N.India 43.10/Tirumala leopardus Butler Type/B.M.Type no Rh.6417 Danais leopardus ♂ Butl./. This specimen is hereby designated lectotype of *Danais leopardus* Butler (Pl. 6, fig. 22), and has been labelled accordingly. The females, /Punjab 54.74/Type no.6418/ and /Moulmein 43.43/Type no.6419/ respectively, are similarly designated paralectotypes.

Danaida limniace mutina Fruhstorfer was described from an unstated number of specimens, from 'Ceylon'. The BMNH possesses five males and four females from Ceylon which were received in the Fruhstorfer Danaid collection. One male bears the following labels: /Ceylon 1889 H.Fruhstorfer/Type [red;Fruhstorfer pattern]/limniace mutina Fruhst. [in Fruhstorfer's handwriting]/Fruhstorfer Coll. BM 1937–285/. This specimen is hereby designated lectotype of *Danaida limniace mutina* Fruhstorfer (Pl. 6, fig. 21), and has been labelled accordingly (type no. Rh 17296). The remaining four males and four females are similarly designated paralectotypes (3♂, 3 ♀, /Ceylon 1889 H.Fruhstorfer'; 1 ♂, /Süd Ceylon Mai 1889 H. Fruhstorfer/; 1 ♀, Ceylon Schilling ex Coll. H. Fruhstorfer/).

Danaus juventa claviger (Gmelin) **stat. n., nom. rev.** [Danaidae]

(Pl. 6, fig. 20)

Papilio Danai festivi sp., Zschach, 1788 : 89, no. 46c*. 'Exoticus'.
Papilio claviger Gmelin, 1790 : 2289, no. 887. LECTOTYPE ♂, 'extra Europam' [? Ambon] (NMI), here designated [examined].
Papilio claviger; O'Reilly, 1813 : 75, no. 46*c*. 'India'.
Danais meganire Godart, 1819 : 192. LECTOTYPE ♂, 'Java' [? Ambon] (MNHN), here designated [examined]. Synonymy originally given by Kirby, 1871 : 639.
Papilio claviger Gmelin; Kirby, 1869 : 358.
?*Danaus claviger* (Gmelin); Kirby, 1871 : 8.
Danaus claviger (Gmelin); Kirby, 1871 : 639; Kirby, 1877 : 691; Ribbe, 1889 : 218, 'Amboina und Ceram'; Röber, 1891 : 289, 'Ceram'.
Radena buruensis Holland, 1900 : 56. LECTOTYPE ♂, Buru (CM), here designated [photograph examined]. Synonymy with *meganire*: Talbot, 1943 : 144. **Syn. n.**
?*Danaida juventa ogylla* Fruhstorfer, 1910 : 214. LECTOTYPE ♂, Aru (BMNH), here designated [examined]. Synonymized with *meganire* by D'Abrera, 1971 : 172.
Danaus juventa meganire (Godart); Bryk, 1937 : 167; Talbot, 1943 : 144; D'Abrera, 1971 : 172.

Papilio claviger Gmelin. A single male specimen in Dublin bears the labels /46c/Claviger, Gmel. Leskean type n.46c?/, in Kirby's handwriting. This specimen is hereby designated lectotype of *Papilio claviger* Gmelin, and has been labelled accordingly; it is in fair condition, but lacks the abdomen (a microscope slide of one foreleg has been prepared to check the sex.).

P. claviger fits very well with the material dealt with by Talbot (1943 : 144) as *Danaus juventa meganire* (Godart), from Buru, Ceram, Gisser, Nausa Laut and Ambon, probably coming from the last named island. There seems no doubt that *claviger* is the senior name for the race of *juventa* on this group of islands, as accepted by Ribbe (1889 : 218) and Röber (1891 : 289).

The original type-locality of *meganire* was given by Godart (1819 : 192) as Java: all subsequent treatments seem to follow Boisduval (1832 : 105) and Blanchard (1853 : 387–388) in attributing Godart's species to the S. Moluccas group of islands.

I have been able to confirm this by examination of the lectotype (Pl. 6, fig. 20), designated below, which probably came from Ambon.

D'Abrera (1971 : 172) has relegated the name *ogylla* Fruhstorfer, as dealt with by Talbot (1943 : 144), to the formal synonymy of *meganire* (= *claviger*). Material formerly in the Rothschild collection, evidently not examined either by Talbot or D'Abrera, does not help to make an easy decision on this; it does appear that *juventa* from the small islands between Ceram and Kai have a somewhat different appearance, as discussed by Talbot under *ogylla*, but probably the effect is a clinal one.

Danais meganire Godart was described from an unstated number of specimens, from 'Java'. A single male specimen in Paris bears the labels /Type/Meganira God. Indes orient. [yellow paper]/Museum de Paris/. This specimen is hereby designated lectotype of *Danais meganire* Godart (Pl. 6, fig. 20), and has been labelled accordingly. The lectotype lacks antennae and abdomen; in addition the fore legs are embedded in glue. The sex has been determined from the colour and scaling of the hind wing anal cells. A second male specimen in Paris which has the labels /Type/Indes orientales. Museum de Paris/, and the two specimens in the RSM, noted by Grimshaw (1898 : 2), are similarly designated paralectotypes.

Radena buruensis Holland was described from 15 examples collected on Buru by William Doherty. These specimens (six males, nine females) are all extant in the Carnegie Museum, Pittsburgh. One male, which bears the labels/Radena Bouruensis Holland n.sp./[in Holland's handwriting]/Bourou. Coll. Doherty/Holland Collection/, is hereby designated lectotype of *Radena buruensis* Holland, and has been labelled accordingly (by Dr Clench, on my behalf). I have examined a photograph of this specimen, kindly taken by Dr F. Martin Brown. The remaining 14 specimens are similarly designated paralectotypes.

Danaida juventa ogylla Fruhstorfer was described from an unstated number of specimens from Aru. A single male in the BMNH bears the labels /Aru-Jnsel/ Type/ogylla Fruhst. [in Fruhstorfer's handwriting]/ Fruhstrofer Coll. BM 1937–285/. This specimen is hereby designated lectotype of *Danaida juventa ogylla* Fruhstorfer and has been labelled accordingly (type no. Rh 17304).

Taenaris urania urania (Linnaeus) [Amathusiidae]

Papilio urania Linnaeus, 1758 : 466. LECTOTYPE ♀, 'in Indiis' [AMBON] (MLU), here designated. Correct type-locality: Corbet, 1949 : 198.

[*Papilio cassiae* Linnaeus; Clerck, 1764 : pl. 29, fig. 3. Misidentification; identity with *urania* established by Corbet, 1941*a* : 15; Corbet, 1949 : 198.]

Papilio jairus Cramer, 1775 : 9, pl. 6, figs A, B. 'East Indies' [? AMBON] (specimen lost?). **Syn. n.**

Papilio jairus Cramer; Cramer, [1777] : 134–135, pl. 185, figs A, B, C. 'Amboina'.

Papilio Danai festivi sp., Zschach, 1788 : 89, no. 47*. 'Exoticus'.

Papilio marinus Gmelin, 1790 : 2289, no. 888. LECTOTYPE ♂, 'extra Europam' [? AMBON] (NMI), here designated [examined]. Synonymy by Kirby, 1869 : 358.

Oreas dubia Jaira Hübner, [1808] : pl. [84], figs 1, 2. [? AMBON] (specimen lost?). Correct date: Hemming, 1937*a* : 336, 403. [Junior secondary homonym of *jairus* (Cramer), 1775.] **Syn. n.**

Papilio murinus [sic]; O'Reilly, 1813 : 75, no. 47. 'India'.

Tenaris nysa Hübner, [1819] : 53. Lectotype ♂, AMBON (BMNH), designated by Hemming. 1964 : 94 [examined: see below; see also Hemming, 1967 : 426]. Synonymy from Kirby, 1871 : 117.
Drusilla urania (Linnaeus); Kirby, 1869 : 358.
Tenaris urania (Linnaeus); Kirby, 1871 : 117; Kirby, 1880 : 300.
Tenaris nox Kirby, [1908] : 47 [new name for *Papilio jaira* Hübner]. **Syn. n.**
Taenaris urania urania (Linnaeus); Stichel, 1933 : 88.
Tenaris urania urania (Linnaeus); Brooks, 1950 : 232.
Taenaris urania urania (Linnaeus); D'Abrera, 1971 : 292. 'Ambon, Saparua'.

Papilio marinus Gmelin. A single male in Dublin bears the labels /47?/47 Urania ? type of Marinus, Gmel./, in Kirby's handwriting, on blue paper. This specimen is hereby designated lectotype of *Papilio marinus* Gmelin, and has been labelled accordingly. It is in fair condition.

Brooks (1950), in his revision of *Taenaris*, does not mention *marinus*, but in his arrangement of the BMNH Amathusiid collection he included it as a strict synonym of *urania*, the type-locality of which is now regarded as Ambon (Corbet, 1949). The three subspecies of *urania* currently recognized (Brooks, op. cit.; D'Abrera, 1971) are not, however, readily separable on the basis of single specimens, but it seems likely that all the old types, including that of *marinus*, came from Ambon. As noted by Kirby (1869 : 358) and also evidently by O'Reilly (1813 : 75), the name *marinus* is really a lapsus by Gmelin for *murinus*, which word is used in the original description. However, since the taxon in question is almost certainly relegated to permanent synonymy, the original spelling of Gmelin is best retained.

The names *jairus* Cramer, *nox* Kirby (= *jaira* Hübner) and *nysa* Hübner, listed in the synonymy above, have been dealt with for a long period in the literature as forms of *Taenaris urania urania* (Brooks, 1950; Hemming, 1964 : 123). However, all these names are available, having been proposed as full species, and as such should be listed in the synonymy of *urania* (L.). The present *International Code* does not apply to infrasubspecific terminology, but these names may still be applied to the dubious forms of *urania* (not, in my opinion, a truly polymorphic species) by those who may wish to do so. It should be noted that the name *duplex* Stichel, referred to by Brooks (1950 : 232) as a form of *urania urania*, correctly applies to *Taenaris urania pandemos* Fruhstorfer.

During this work I have recognized the lectotype-specimen of *Tenaris nysa* Hübner in the BMNH collections. Hemming (1964 : 94) made the original designation on the basis of a figure in Cramer (1777), without realising that some of the Cramer material was still in existence (as discussed elsewhere in this paper). The discovery of this lectotype-specimen is of special significance, *nysa* being the type-species of the genus *Taenaris* Hübner (Hemming, 1967 : 426).

Tenaris nysa Hübner. Lectotype designated by Hemming (1964 : 94) as the specimen represented by figure A on plate 185, in Cramer (1777). This specimen, a male, is now believed to be in the BMNH, and bears the labels /No. 94. JAIRUS. Cr. I. 6. AB. & II. 185. ABC/Felder Colln/Rothschild Bequest BM 1939–1/Tenaris nysa Hübner, Lectotype ♂, det. R.I.V.–W., 1972/BM Type No. Rh 17305/. The first label is a typical 'Cramer label'; Cramer (1777 : 135) notes the specimens illustrated as being from Ambon, in the collection of C. van Lennep.

Papilio urania Linnaeus. Corbet (1949 : 198) summarizes his work on the type-material of this species. I hereby designate the specimen in MLU, as dealt with by Corbet (loc. cit.), and illustrated by Clerck (1764 : pl. 29, fig. 3) under the name *Papilio cassiae*, lectotype of *Papilio urania* Linnaeus.

Papilio jairus Cramer was originally described from an unstated number of females, from the 'East Indies'. Those parts of the Cramer material which have not survived in the Felder collection or at Leiden are presumed to be lost. I have been unable to find any *urania* specimens of the distinctive nature of the specimen described as *jairus* by Cramer in the Felder material in the BMNH, and likewise no specimens of this form appear to survive in Leiden.

Oreas dubia jaira Hübner was based on one or more male specimens, as originally illustrated by Hübner. The locality was not indicated, and no published or manuscript text exists for the particular plate concerned (Hemming, 1937*a*; 1937*b*). The name *jaira* Hübner is invalid, being a secondary homonym of *jairus* Cramer; Kirby proposed the name *Tenaris nox* to replace it.

Euploea leucostictos leucostictos (Gmelin) [Danaidae]

Papilio Danai festivi sp., Zschach, 1788 : 90, no. 48*. 'Exoticus'.
Papilio leucostictos Gmelin, 1790 : 2289, no. 889. LECTOTYPE [☿], 'extra Europam' [Ambon] (NMI), here designated [examined]. Corbet, 1947 : pl. 4, fig. 1.
Lemnas mutabilis Nemertes Hübner, [1807] : pl. [26], figs 3, 4; manuscript text, Hemming, 1937*b* : 102–104. [Ambon] (specimen lost). Synonymy by Kirby, 1869 : 359; Corbet, 1947 : 229.
Papilio leucostictos; O'Reilly, 1813 : 75, no. 48. 'India'.
Euplaea aglidice Boisduval, 1832 : 96. LECTOTYPE ♀, 'Rawack' [Ambon] (BMNH), here designated [examined]. **Syn. n.**
Euploea pasithea Felder & Felder, 1865 : 318. LECTOTYPE ♂, Ambon (BMNH), here designated [examined]. Synonymy by Kirby, 1871 : 13.
Euploea leucostictos (Gmelin); Kirby, 1869 : 358; Kirby, 1871 : 13; Kirby, 1880 : 294.
Salpinx oculata Moore, 1883 : 302. LECTOTYPE ♂, 'Mindanao' [Ambon] (BMNH), here designated [examined]. **Syn. n.**
Euploea leucostictos leucostictos (Gmelin); Corbet, 1947 : 228, pl. 4, fig. 1. (Correct type-locality).
Euploea nemertes nemertes (Hübner); D'Abrera, 1971 : 192.

Papilio leucostictos Gmelin. A single, composite, specimen in Dublin bears the labels /48/48 Leucostictos, Gmel. Type from Mus.Lesk./, the latter being in Kirby's handwriting on blue paper. This specimen (figured by Corbet, 1947 : pl. 4, fig. 1) is hereby designated lectotype of *Papilio leucostictos* Gmelin, and has been labelled accordingly. The wings are those of a female insect, but the abdomen is male; the head is glued on upside down with two bristles affixed as antennae. The latter deception was noted by Corbet and clearly shows in his photograph. Corbet (op. cit.) also established the true type-locality of *leucostictos*, thereby correcting the erroneous locality of Java which had been attributed to this name for many years (e.g. Bryk, 1937 : 392). As a result, the names *Lemnas nemertes* Hübner, *Euplaea aglidice* Boisduval, *Euploea pasithea* Felder & Felder and *Salpinx oculata* Moore fall into the strict synonymy of *leucostictos* Gmelin. Lectotype designations for three of the synonymous species are appended.

Lemnas nemertes Hübner was described from an unstated number of male specimens, now lost. Hemming (1937*a* : 419, 429; 1937*b* : 102–104) deals with the previously unpublished manuscript text; the original material evidently came from Ambon.

Euplaea aglidice Boisduval was described from an unstated number of female specimens, from 'Rawack (terre de Papous)'. A single female in the BMNH bears the following labels: /Type/Typicum Specimen/Aglidice Boisduval Astrolabe – type/ Ex Musaeo Dr Boisduval/vu par Moore en 1881/Euplaea aglidice Bdv (astrolabe, page 96) ♀ Rawack (terre de Papous)/Euploea nemertes. ♀. Hubn./Ex Oberthür Coll BM 1927–3/. This specimen is hereby designated lectotype of *Euplaea aglidice* Boisduval, and has been labelled accordingly (type no. Rh 17297).

Euploea pasithea Felder & Felder was described from an unstated number of male and female specimens, from 'Amboina', collected by Doleschall and Lorquin. The BMNH possesses a single pair, the male of which bears the following labels: /Amboina Doleschall/Felder Colln/Type HT/pasithea/Rothschild Bequest BM 1939–1/. This specimen is hereby designated lectotype of *Euploea pasithea* Felder & Felder, and has been labelled accordingly (type no. Rh 17298). The female specimen bears the labels /Amboina Lorquin/Pasithea de Haan/Felder Colln/Type AT/Rothschild Bequest BM 1939–1/, and is similarly designated paralectotype.

Salpinx oculata Moore was described from an unstated number of male specimens, from 'Philippines (Mindanao)', in the British Museum. The BMNH now possesses a single male which bears the following labels: /Type/Mindanao, 'Challenger' 83–62/Salpinx oculata ♂ type Moore/BM type no. Rh 6768/. This specimen is hereby designated lectotype of *Salpinx oculata* Moore, and has been labelled accordingly.

Doleschallia hexopthalmos hexopthalmos (Gmelin) [Nymphalidae]

[*Papilio polibete* Cramer; Cramer, [1779] : 73, pl. 235, figs C, D. Misidentification.]

Papilio Danai festivi sp., Zschach, 1788 : 90, no. 49*. 'Exoticus'.

Papilio hexopthalmos Gmelin, 1790 : 2289, no. 890. LECTOTYPE ♀, 'extra Europam' [? AMBON] (NMI), here designated [examined].

Papilio hexopthalmos; O'Reilly, 1813 : 75, no. 49. 'India'.

Papilio hexopthalmos Gmelin; Kirby, 1869 : 359.

Doleschallia hexopthalmos (Gmelin); Kirby, 1871 : 194.

Doleschallia amboinensis Staudinger, April 1885 : 104 [Feb. 1886], pl. 39 [Apr. 1885]. Holotype ♂, AMBON (MNHU). Synonymy by D'Abrera, 1971 : 228.

Doleschallia crameri Distant, July 1885 : 41. AMBON (type-material lost). Synonymy by D'Abrera, 1971 : 228.

Doleschallia hexopthalmos hexopthalmos (Gmelin); Fruhstorfer, 1912*a* : 561. 'Amboina'.

Doleschallia hexopthalmos hexopthalmos (Gmelin); D'Abrera, 1971 : 228. 'Buru, Ambon, Serang, Saparua'.

Papilio hexopthalmos Gmelin. A single female specimen in Dublin bears the labels /49/Hexopthalmos, Gmel [49] type specimen Doleschall [ia] Hexopthalmos, Gmel . . . [o]verlooked for 70 years, . . . [u]nfigured/, the latter being a badly cut label in Kirby's handwriting, on blue paper. This specimen, which is in moderate condition, is hereby designated lectotype of *Papilio hexopthalmos*, and has been labelled accordingly.

Fruhstorfer (1912 : 561) appears to have correctly interpreted Gmelin's species as an insect from Ambon; *hexopthalmos* is still regarded as a good species with a number of subspecies (D'Abrera, 1971 : 228). The classification of *Doleschallia* species is, however, perplexing (vide D'Abrera, op. cit.); anyone revising the group will have to pay particular attention to type-material, including that of *hexopthalmos*.

Doleschallia crameri Distant. Distant (1885 : 41) recognized that Cramer had confused two species under the name *polibete*, describing first the male of one species (Cramer, 1779 : 71, pl. 234, figs D, E), and then a female of another (op. cit: 73, pl. 235, figs C. D). Distant restricted the 'type' of *polibete* to figs D, E on pl. 234, naming the insect illustrated on pl. 235, figs C, D, as *crameri*. In addition Distant referred to *crameri* material of both sexes collected on Ambon by Forbes. No *crameri* specimens attributable to either Cramer or Forbes are present in the Rothschild collection (BMNH), where they might have been expected.

Papilio polibete Cramer. As noted above, Distant restricted the usage of this name to the species dealt with by Cramer (1779) on pages 71–72 and pl. 234, figs D, E. The material concerned evidently came from Ambon; the name *polibete* is currently in use for the subspecies of *Doleschallia bisaltide* (Cramer) recognized from Ambon, Ceram and Saparua (D'Abrera, 1971 : 266). No original specimens are to be found in the Rothschild collection, or apparently in Leiden (RNH); they are presumed lost or destroyed. In the absence of type-material of either *crameri* or *polibete*, Distant's usage should be followed; it may eventually be necessary to designate neotypes for one or both names.

Zaretis itys (Cramer) [Charaxidae]

Papilio itys Cramer, [1777] : 34, 149 (*itus*), pl. 119, figs F, G. LECTOTYPE ♀, Surinam (BMNH), here designated [examined].

Papilio isidora Cramer, [1779] : 72, pl. 235, figs A,B,E,F. 1 ♂, 1 ♀ syntypes, Surinam (BMNH) [examined].

Papilio Danai festivi sp., Zschach, 1788 : 90, no. 55*. 'Exoticus'.

Papilio strigosus Gmelin : 2290, no. 891. LECTOTYPE ♀, 'extra Europam' [? Surinam] (NMI), here designated [examined].

Papilio strigosus; O'Reilly, 1813 : 75, no. 55. 'India'.

Siderone itylus Westwood, 1850 : 321. Holotype ♂, Brazil: Rio de Janeiro (BMNH) [examined]. Authorship and date: Hemming, 1941 : 456.

Siderone zethus Westwood, 1850 : 321. Holotype ♂, Brazil: Para (BMNH) [examined]. Authorship and date: Hemming, 1941 : 463.

Siderone ellops Ménétriés, 1855 : 88, pl. 3, fig. 1. ♂, ♀ syntypes, Nicaragua (ZI).

Siderone strigosa (Gmelin); Kirby, 1869 : 359, 1871 : 280. 'Para'.

Siderone isidora var. *strigosa* Staudinger, 1887 : 184, 185. Brazil: Rio de Janeiro to Rio Grande do Sul (MNHU). [Junior homonym of *Papilio strigosus* Gmelin, 1790.]

Siderone isidora var. *cacica* Staudinger, 1887 : 184. Peru: Chanchamayo (MNHU).

Zaretes isidora strigosa (Staudinger); Fruhstorfer, 1909 : 167. 'Sao Paulo to Sta. Catharina'.

Zaretes itys pseuditys Fruhstorfer, 1909 : 166. 2 ♂, 1 ♀ syntypes, Brazil: Espirito Santo (BMNH) [examined].

Zaretes isidora anzuletta Fruhstorfer, 1909 : 167. 1 ♂, 1 ♀ syntypes, MEXICO (BMNH) [examined].
Zaretes isidora russeus Fruhstorfer, 1909 : 167. 1 ♂ syntype, COLOMBIA (BMNH) [examined].
Zaretes isidora vulpecula, Fruhstorfer, 1909 : 167. 3 ♂, 1 ♀ syntypes, BRAZIL: Bahia (BMNH) [examined].
Zaretes isidora leopoldina Fruhstorfer, 1909 : 167. 1 ♂ syntype, BRAZIL: Espirito Santo (BMNH) [examined].
Zaretes isidora vulpina Fruhstorfer, 1909 : 167. 7 ♂, 1 ♀ syntypes, PARAGUAY (BMNH) [examined].
Siderone strigosus (Gmelin); Weeks, 1911 : xii. 'Venezuela: Suapure'.
Zaretes isidora zethus (Westwood); Röber, 1916 : 578. ('= *strigosus* Gmelin?; lower Amazon and Paraquay').
Zaretes isidora strigosus (Gmelin); Talbot, 1928 : 209. 'Mato Grosso'.
Zaretis itys strigosus (Gmelin); Stichel, 1939 : 726. 'Para'.
Zaretis itys strigosa (Staudinger); Stichel, 1939 : 726. (= *strigosus* Gmelin?; Rio de Janeiro').
Anaea (*Zaretis*) *itys* (Cramer); Comstock, 1961 : 30. (All available names carried in synonymy).

Papilio strigosus Gmelin. A single female specimen in Dublin bears the label /55 Strigosus, Gmel. type specimen/, in Kirby's handwriting, on blue paper. This specimen is hereby designated lectotype of *Papilio strigosus* Gmelin, and has been labelled accordingly. It is in rather poor condition, badly worn and variously repaired; one 'antenna' consists of a piece of bristle. As discussed below, this specimen most probably came from Surinam.

Comstock (1961), in his treatment of *Anaea* and allies followed, according to many workers, a very conservative line, demoting *Zaretis* to subgeneric rank. Further, while admitting evidence of subspeciation in *Zaretis itys*, he treated all available names applied to this species as synonymous, stating that 'with the present confused state of the literature and the unsatisfactory working material no attempt is made at the present time to assign the names properly' (Comstock, 1961 : 31).

Having examined the literature as pertaining just to the name *strigosus* Gmelin, I feel sympathy for Comstock's view. As can be seen from the synonymy presented above, the name *strigosa* or *strigosus* has been variously applied to material from Venezuela, Para, Mato Grosso and southern Brazil. Most confusingly, Staudinger (1887) named *strigosa* from South Brazil, evidently unsure whether his *strigosa* was the same as *strigosus* Gmelin or not. Clearly in this case *strigosa* Staudinger should be treated as an invalid homonym; the oldest valid name for such a subspecies, in any case, is *itylus* Westwood. This leaves *strigosus* Gmelin as a name most commonly applied to material of *itys* from the lower Amazon (Para). Having examined the lectotype, however, I see no reason why the name should not be applied to the Guyana/Surinam region, the most likely locality for the Leske material. The lectotype is perhaps closest in appearance to material of *itys* from Trinidad (in NMI and BMNH).

I refrain at this time from designating further lectotypes for the names pertaining to *itys*, as listed above in synonymy, with the exception of *itys* itself. It seems likely that Comstock's conservative approach will be superceded; Rydon (1971) has recently reinstated *Zaretis* to full generic rank. Those who may wish to rework the infraspecific and infrasubspecific taxonomy of *itys* will find further references in Stichel (1939) and Comstock (1961). In the course of any thorough revision, the lectotype of *strigosus* Gmelin will have to be re-examined. If possible, however, I suspect that the best course will be to apply *strigosus* to a Surinam insect, thereby removing this confusing name from the classification by placing it in the strict synonymy of *itys* Cramer (assuming that only one species is involved in this complex). A lectotype designation for *itys*, the senior name, is appended.

Papilio itys Cramer was described from an unstated number of female specimens from Surinam. A single female in the Rothschild collection (BMNH) which bears the labels /Surinam Coll Lenep/Felder Colln/ compares closely with Cramer's original illustrations. This specimen is hereby designated lectotype of *Papilio itys* Cramer, and has been labelled accordingly (type no. Rh 17307).

Hypolimnas pandarus pandarus (Linnaeus) [Nymphalidae]

Papilio pandarus Linnaeus, 1758 : 461; Clerck, 1764 : pl. 26, fig. 2. LECTOTYPE ♀, 'in Indiis' [AMBON] (MLU), here designated. Type-locality: see Corbet, 1941 : 15; Corbet, 1949 : 193, 197.
Papilio pipleis Linnaeus, 1758 : 476; Clerck, 1764 : pl. 26, fig. 2. LECTOTYPE ♀, 'in Indiis' [AMBON] (MLU), here designated. Synonymy from Kirby, 1871 : 225. Type-locality: see Corbet, 1941 : 14; Corbet, 1949 : 193, 197.
Papilio calisto Cramer, 1775 : 37, pl. 24, figs A, B. LECTOTYPE ♂, 'Africa' [? AMBON] (BMNH), here designated [examined]. Synonymy from Kirby, 1871 : 225.
Papilio pipleis Linnaeus; Cramer, 1775 : 93, pl. 60, figs A, B. ['Amboina'; compared with *calisto*.]
Papilio Nymphales Gemmati sp., Zschach, 1788 : 90, no. 58b*. 'Exoticus'.
Papilio lacteolus Gmelin, 1790 : 2290, no. 892. LECTOTYPE ♀, 'extra Europam' [? AMBON] (NMI), here designated [examined]. Synonymy from Kirby, 1869 : 359.
Papilio lacteolus; O'Reilly, 1813 : 75, no. 58b. 'India'.
Diadema pandarus (Linnaeus); Kirby, 1869 : 359.
Hypolimnas pandarus (Linnaeus); Kirby, 1871 : 225. 'Amboina, Ceram'.
Hypolimnas pandarus pandarus (Linnaeus); Fruhstorfer, 1912*a* : 554. 'Amboina, Saparua, Ceram'.
Hypolimnas pandarus pandarus (Linnaeus); D'Abrera, 1971 : 224.
[*Hypolimnas hewitsoni* (Wallace); D'Abrera, 1971 : 224. Misidentification.]

Papilio lacteolus Gmelin. A single female in Dublin bears the labels /58b Pandarus. type of Lacteolus, Gmel./21. 5. 6. 79./, the former in Kirby's handwriting. This specimen is hereby designated lectotype of *Papilio lacteolus* Gmelin, and has been labelled accordingly. In quite good condition, the lectotype is very similar to the specimen erroneously illustrated by D'Abrera (1971 : 225) as the female of '*Hypolimnas pandarus hewitsoni*', from 'Kai'. The latter is in fact a *pandarus* female from Ceram; an exactly similar form, however, occurs on Ambon, which seems the most likely type-locality for *lacteolus*. True *hewitsoni* (Wallace) is a subspecies of *H. deois* (Hewitson).

Corbet (1941; 1949) considered the Linnaean species *pandarus* and *pipleis* to be from Ambon. Corbet further considered both these names to be based on the same type-specimen, illustrated by Clerck (1764), and thus objectively synonymous. For completeness I append lectotype designations for these, to finally establish this synonymy, and for *calisto* Cramer, the remaining synonym.

Papilio pandarus Linnaeus. Corbet (1949 : 197) summarizes his work on the type-material of this species. I hereby designate the specimen in MLU, as dealt with by Corbet (loc. cit.) and illustrated by Clerck (1764 : pl. 26, fig. 2, as *Papilio pipleis*), lectotype of *Papilio pandarus* Linnaeus.

Papilio pipleis Linnaeus. Corbet (1949 : 197) summarizes his work on the type-material of this species. I hereby designate the specimen in MLU, as dealt with by Corbet (loc. cit.) and illustrated by Clerck (1764 : pl. 26, fig. 2), lectotype of *Papilio pipleis* Linnaeus, which is thereby finally established as an objective synonym of *pandarus* L.

Papilio calisto Cramer was described from an unstated number of specimens from 'Africa', in the collection of W. van der Meulen. The BMNH possesses a single male received in the Rothschild collection which corresponds well with Cramer's original illustration, and bears the following labels: /No. 40. CALISTO. Cr.1.24.A.B./Felder Colln/Rothschild Bequest BM 1939–1/. The former label is in the characteristic style believed to be associated with Cramer material. This specimen is hereby designated lectotype of *Papilio calisto* Cramer, and has been labelled accordingly (type no. Rh 17300).

Antirrhea bifasciatus (Gmelin) [Satyridae]

Papilio Nymphales Gemmati sp., Zschach, 1788 : 91, no. 59*. 'Exoticus.'
Papilio bifasciatus Gmelin, 1790 : 2290, no. 893. 'Extra Europam' [? SURINAM] (formerly in NMI, type-material destroyed).
Papilio bifasciatus; O'Reilly, 1813 : 75, no. 59. 'India'.
Papilio bifasciatus Gmelin; Kirby, 1869 : 359.
Antirrhaea bifasciatus (Gmelin); Kirby, 1871 : 642; Weymer, 1910 : 182 (footnote).

Papilio bifasciatus Gmelin. Kirby (1869 : 360) states of this species 'One of the Satyrinae. A fragment of one of the types is still in existence; but I have not yet succeeded in identifying it'. Two years later (Kirby, 1871 : 642) he placed *bifasciatus* in *Antirrhea*, to follow the well known species *taygetina* Butler. My searches in Dublin for the 'fragment' of the type proved fruitless; for the reasons discussed in detail in the Historical Review above (p. 24), I prefer to retain this name as a species inquirenda of the genus *Antirrhea*.

Papilio sulpitia Gmelin [?family]

Papilio Nymphales Phalerati sp., Zschach, 1788 : 92, no. 88*. 'Exoticus'.
Papilio sulpitia Gmelin, 1790 : 2336, no. 894. 'Extra Europam' (formerly in NMI, type-material destroyed). [Junior homonym of *Papilio sulpitia* Cramer, 1779, and *Papilio sulpitia* Stoll, 1780.]
Papilio sulpitia; O'Reilly, 1813 : 76. 'India'.
Papilio sulpitia Gmelin; Kirby, 1869 : 360; 1871 : 637; Sherborn, 1902 : 948.

Papilio sulpitia Gmelin. The type-material of this species was evidently destroyed sometime between 1813 and 1869. Kirby (1869 : 360) repeats the original Latin description; probably unrecognizable, this forgotten name is in any case invalid, being a junior primary homonym of both *Papilio sulpitia* Cramer and

P. sulpitia Stoll. Both the latter were, however, described within '*Papilio Nymphales Phalerati*', as was *sulpitia* Gmelin; the original description of Zschach (considerably shortened and modified by Gmelin) could apply to Cramer's species, the Chinese *Ladoga sulpitia*, but not to Stoll's *Metamorpha elissa* Hübner (= *sulpitia* Stoll), from South America. Conceivably Gmelin intended to refer to Cramer's original *sulpitia*, having perhaps identified Zschach's *Papilio* no. 88 with it. However, as Gmelin did not make any such reference, the name *sulpitia* Gmelin should be treated as suggested above.

Papilio vidua Gmelin [?family]

Papilio Nymphales Phalerati sp., Zschach, 1788 : 92, no. 89*. 'Exoticus'.
Papilio vidua Gmelin, 1790 : 2336, no. 895. 'Extra Europam' (formerly in NMI, type-material destroyed). [Junior homonym of *Papilio vidua* Müller, 1764.]
Papilio vidua; O'Reilly, 1813: 76, no. 89. 'India'.
Papilio vidua Gmelin; Kirby, 1869 : 360; 1871 : 637; Sherborn, 1902 : 1044.

Papilio vidua Gmelin. The type-material was evidently destroyed or lost between 1813 and 1869. Kirby (1869 : 360) repeats the original description; probably unrecognizable, this forgotten name is invalid, being a junior primary homonym of *Papilio vidua* Müller. In this case there is no question of Gmelin having failed to give a reference to the original name; *vidua* Müller and *vidua* Gmelin are unquestionably different, Müller's species being referable to the European Satyrid *Aphantopus hyperantus* (Linnaeus).

Thecla cupentus (Stoll) s. str. [Lycaenidae]

Papilio cupentus Stoll, [1781] : 93, pl. 337, figs F, G. LECTOTYPE ♂, SURINAM (BMNH), here designated [examined]. Correct date and authorship: Hemming, 1958 : 43; Brown, 1941.
Papilio Plebeii Rurales sp., Zschach, 1788 : 93, no. 123*. 'Exoticus.'
Papilio annulatus Gmelin, 1790 : 2359, no. 896. LECTOTYPE ♂, 'extra Europam' [? SURINAM] (NMI), here designated [examined]. Synonymy by Draudt, 1920 : 769.
Papilio annulatus; O'Reilly, 1813 : 76, no. 123. 'Surinam'.
Papilio annulatus Gmelin; Kirby, 1869 : 361.
Thecla annulatus (Gmelin); Kirby, 1871 : 399.
Thecla cupentus (Cramer); Draudt, 1920 : 769; Comstock & Huntington, 1959 : 72.

Papilio annulatus Gmelin. A single male specimen in Dublin bears the labels /123/123 Annulatus, Gmel. type/, in Kirby's handwriting; this specimen is hereby designated lectotype of *Papilio annulatus* Gmelin, and has been labelled accordingly. The specimen is in rather poor condition, lacking antennae and large portions of the hind wings; the abdomen has now been dissected (preserved on separate 75 mm × 25 mm glass slide). The lectotype is evidently from the Surinam region; it is amusing to note that while Zschach and Gmelin gave their usual '*Exoticus*' and '*extra Europam*' respectively, O'Reilly forsook his usual 'India' for 'Surinam', this change, however, probably being accidental.

I am indebted to Dr H. K. Clench for much help and information concerning this species. He has pointed out to me that *cupentus* must eventually be removed from the omnibus '*Thecla*', probably requiring the erection of a new genus to receive it. Further, he notes that the appearance of *cupentus* from the Guyana region is rather different compared with material from other areas in South America, perhaps indicating that this species will eventually be broken up into subspecies or siblings. To check this point Dr Clench sent me drawings of the male genitalia of a supposed *cupentus* from Colombia. I have compared this with dissections of the lectotypes of both *annulatus* and *cupentus*, finding all three to be in no way significantly different. I thus regard the latter two names as strictly synonymous, pertaining to material from the Guyana region (*cupentus* Stoll s. str.); the Colombian specimen would appear to represent, at most, only a separate subspecies. The lectotype designation for *cupentus* follows.

Papilio cupentus Stoll was described from an unstated number of male specimens from 'Suriname', apparently lent to Stoll by W. van der Meulen. A single male specimen in the BMNH now bears the following labels: /Surinam. Lenip/Felder Colln/Rothschild Bequest BM 1939–1/. As explained elsewhere, a number of apparent Cramer and Stoll specimens reached the Rothschild collection via van Lennep and Felder. I have compared this specimen with Stoll's published work, and the original paintings, with which it compares quite closely, allowing for some 'artistic licence' (as with all Cramer and Stoll illustrations, they are somewhat stylized). This specimen is hereby designated lectotype of *Papilio cupentus* Stoll, and has been labelled accordingly (type no. Rh 17301; slide no. Rh 11176).

Cupido oculatus (Gmelin) [Lycaenidae]

Papilio Plebeii Rurales sp., Zschach, 1788 : 93, no. 131*. 'Eur'.
Papilio oculatus Gmelin, 1790 : 2359, no. 897. 'In Europa' (formerly in NMI; type-material destroyed).
Papilio oculatus; O'Reilly, 1813 : 77, no. 131. 'Europe'.
Papilio oculatus Gmelin; Kirby, 1869 : 361.
Cupido oculatus (Gmelin); Kirby, 1871 : 375.

Papilio oculatus Gmelin. The type-material of this species was evidently lost or destroyed between 1813 and 1869. Kirby (1869 : 361) repeats the original description and indicates (under *lunulatus* Gmelin) that this species is a European Lycaenid, probably belonging either to the *arion*-group (*Maculinea* van Eecke) or *Polyommatus* Latreille. Two years later Kirby (1871 : 375) placed *oculatus* in his omnibus treatment of *Cupido* Schrank (to include *Polyommatus*), near *arion* (L.). The name *oculatus* seems subsequently to have been unused. It has never been recognised as pertaining to any known species. Despite Kirby's claim that it may prove possible to identify, no one has been able to do so yet.

Cupido lunulatus (Gmelin) [Lycaenidae]

Papilio Plebeii Rurales sp., Zschach, 1788 : 93, no. 132*. 'Eur'.
Papilio lunulatus Gmelin, 1790 : 2359, no. 898. 'In Europa' (formerly in NMI; type-material destroyed).

Papilio lunulatus; O'Reilly, 1813 : 76, 77, nos 130, 132. 'Europe'.
Papilio lunulatus Gmelin; Kirby, 1869 : 361.
Cupido lunulatus (Gmelin); Kirby, 1871 : 375.

Papilio lunulatus Gmelin. The type-material has evidently been destroyed. All comments applied to *Papilio oculatus* above apply equally to this species, but see also entry below (p. 54) for *Papilio Plebeii Rurales* sp., Zschach no. 130*.

Jemadia hospita hephaestos (Plötz) **stat. n., nom. rev.** [Hesperiidae]

(Pl. 6, fig. 24)

Papilio Plebeii Urbicolae sp., Zschach, 1788 : 94, no. 154*. 'Exoticus'.
Papilio aethiops Gmelin, 1790 : 2360, no. 899. LECTOTYPE ♂, 'extra Europam' [? SURINAM] (NMI), here designated [examined]. Incorrectly synonymized with *Jemadia menechmus* (Mabille) by Evans, 1951 : 52. [Junior homonym of *Papilio aethiops* Esper, 1779.] **Syn. n.**
Papilio aethiops; O'Reilly, 1813 : 77, no. 154. 'Africa'.
Papilio aethiops Gmelin; Kirby, 1869 : 361.
? *Pyrrhopyge aethiops* (Gmelin); Kirby, 1871 : 587.
Pyrrhopyga hephaestos Plötz (Möschler in litt.), 1879 : 521. Holotype ♀, SURINAM [: Paramaribo] (MNHU, Berlin) [examined].
Pyrrhopyge hephaestus Möschler, 1883 : 324. Holotype ♀, SURINAM: Paramaribo (MNHU) [examined]. Based on the same type-specimen, the name *hephaestus* Möschler is an objective synonym of *hephaestos* Plötz.
? *Pyrrhopyge aethiops* (Gmelin); Mabille, 1912 : 7.
[*Jemadia hospita ulixes* (Plötz); Evans, 1915 : 51. Misidentification.]
Papilio aethiops Gmelin; Evans, 1951 : 52 (primary homonym of *aethiops* Esper). [Incorrectly placed as a synonym of *Jemadia menechmus* (Mabille).]

Papilio aethiops Gmelin. A single male specimen in Dublin bears the label /154 Aethiops, Gmel. Type specimen/, in Kirby's handwriting; this specimen is hereby designated lectotype of *Papilio aethiops* Gmelin, and has been labelled accordingly. It is in rather poor condition. The abdomen has been dissected and is now preserved on a separate 75 mm × 25 mm glass slide. The type-locality of *aethiops* Gmelin is almost certainly Surinam (O'Reilly was misled by the name). However, although the few specimens in the BMNH which correspond to *aethiops*, as dealt with by Evans (1951 : 51) under *Jemadia hospita ulixes*, mostly bear the designation 'Surinam', all are very old, 18th century, as is the type of *aethiops*. The name *aethiops* Gmelin is an invalid homonym; the only suitable replacement that I have been able to find is *hephaestos* Plötz. However, it is with some doubt that I here refer the 18th century *aethiops* Gmelin material to the latter name, which is based on a 19th century specimen (Pl. 6, fig. 24) and does not correspond precisely with true *aethiops*, or any other material that I have seen. The type of *hephaestos* is, unfortunately, a female; it may eventually prove necessary, or the better course, to propose a new name for *aethiops* Gmelin. The species requires the acquisition of fresh material and careful re-examination.

The following notes on the synonymies of *Jemadia menechmus*, *J. hospita* and *J. hewitsonii* stem from examining Evans' (1951) work with respect to the synonymy of *aethiops* Gmelin.

Jemadia menechmus (Mabille) [Hesperiidae]

Evans (1951 : 52) identified *aethiops* Gmelin with this name. As shown above, *aethiops* pertains to *J. hospita* (Butler), and should be removed from the synonymy of *menechmus*.

Jemadia hospita hospita (Butler) [Hesperiidae]

(Pl. 6, fig. 23)

Pyrrhopyga hospita Butler, 1877 : 128. LECTOTYPE ♂, Peru: Ucayali (BMNH), here designated [examined].

Pyrrhopyga ulixes Plötz, 1879 : 521. LECTOTYPE ♂, 'Suriname' [? true locality] (MNHU), here designated [examined]. **Syn. n.**

Evans (1951 : 51) dealt with material attributable to true *aethiops* Gmelin as subspecies *J. hospita ulixes* (Plötz). However, examination of the *ulixes* type (Pl. 6, fig. 23) shows it to be very similar to *hospita* Butler; it seems possible that it came from the upper Amazon region rather than Surinam as originally indicated.

Pyrrhopyga hospita Butler was described from 'several examples' collected at Ucayali, Peru, by Walter Davis. A single male specimen now remains in the BMNH and bears the labels /Type H.48/Peru. W. Davis. 77–52/P. hospita Butler Type/; this specimen is hereby designated lectotype of *Pyrrhopyga hospita* Butler and has been labelled accordingly (type no. Rh 17306).

Pyrrhopyga ulixes Plötz was described from an unstated number of specimens from 'Surinam'. A single male specimen in the MNHU bears the labels /Type/ Surinam VoliKman/Ulixes Plötz*/Ulixes Plötz Stett.Ent.Zeit. 1879, p.521/4931/ 9 : 16/, and is hereby designated lectotype of *Pyrrhopyga ulixes* Plötz (Pl. 6, fig. 23); it has been labelled accordingly.

Jemadia hewitsonii brevipennis Schaus [Hesperiidae]

Jemadia brevipennis Schaus, 1902 : 425. Holotype, Brazil: São Paulo (USNM), type no. 5962.

? *Jemadia lisetta* Mabille & Boullet, 1908 : 195, 197. 1 ♂ syntype, Peru (MNHN), [examined]. Incorrectly synonymized with *J. hospita ulixes* by Evans, 1951 : 51.

Jemadia hewitsonii brevipennis Schaus; Evans, 1951 : 54. 'Bolivia, Mato Grosso, Sao Paulo'.

As noted above, Evans (1951 : 51) dealt with true *aethiops* Gmelin as *J. hospita ulixes*, to which he also attributed *lisetta* Mabille & Boullet. The latter was described from three males in the Boullet collection from Peru and another male in the Mabille collection, from Bolivia. Evans effectively claimed to have identified the latter specimen in the BMNH collections, noting that it was labelled '*lisetta*' by Mabille, had no locality data, and was probably from Surinam. This specimen he regarded as the 'type', and it formed the basis of his synonymy. However, Mabille named a considerable amount of material in the BMNH collections, often inaccurately. I do not consider there to be sufficient evidence to regard this specimen as the 'Bolivian' example noted in the original description. I have examined one of the syntypic Peru males (Pl. 6, fig. 25) of the Boullet collection, now in the MNHN, and find it to be extremely similar to *J. hewitsonii brevipennis* Schaus, as dealt with by Evans (1951 : 54). This, however, is rather surprising, since one might expect *hewitsonii* material from Peru to fit the nominotypical subspecies. A cursory examination of *hewitsonii* material as dealt with by Evans suggests that it is possible that two species, with overlapping ranges may be involved; the whole *hewitsonii* complex needs careful re-examination, as indeed, does the whole species taxonomy of *Jemadia*, Evans' account seemingly being inadequate in a number of ways.

Autochton bipunctatus (Gmelin) [Hesperiidae]

(Pl. 6, fig. 26)

Papilio Plebeii Urbicolae sp., Zschach, 1788 : 94, no. 160*. 'Exoticus'.
Papilio bipunctatus Gmelin, 1790 : 2360, no. 900. NEOTYPE ♂, FRENCH GUIANA (BMNH), here designated [examined].
Papilio bipunctatus; O'Reilly, 1813 : 77, no. 160. 'India'.
Papilio bipunctatus Gmelin; Kirby, 1869 : 362.
Thymele bipunctatus (Gmelin); Kirby, 1871 : 572. *Cecrops neis* Geyer given as a synonym.
Cecropterus bipunctatus (Gmelin); Möschler, 1877 : 344; Kirby, 1880 : 329.
Cecropterus neis (Geyer); Plötz, 1882 : 261. 'Laguayra'; *bipunctatus* given as a synonym of *neis*.
Cecropterus orontes Plötz, 1882 : 261. VENEZUELA: La Guaira (type-material lost). Synonymy by Evans, 1952 : 125.
Cecropterus bipunctatus (Gmelin); Mabille, 1883 : lv. As separate species from *neis*.
Cecropterus zonilis Mabille, 1883 : lvi. LECTOTYPE ♂, COLOMBIA (BMNH), here designated [examined]. Synonymy from Evans, 1952 : 125.
Cecropterus bipunctatus (Gmelin); Watson, 1893 : 32.
Cecropterus neis (Geyer); Godman & Salvin, 1894 : 328. *C. bipunctatus* (Gmelin) given as a doubtful synonym.
Cecropterus bipunctatus (Gmelin); Mabille, 1903 : 29; Kaye, 1904 : 211.
Cecropterus bipunctatus (Gmelin); Draudt, 1922 : 870. ? Misidentification according to Evans, 1952 : 125.
Autochton bipunctatus (Gmelin); Evans, 1952 : 125.
Cecropterus bipunctatus (Gmelin); Barcant, 1970 : 298.

Papilio bipunctatus Gmelin. The specimen of *bipunctatus* studied by Kirby (1869 : 362; 1871 : 572) is no longer to be found in Dublin. Kirby (1880 : 329) lists one specimen of this species, but as usual this does not refer to type-material (see discussion of *Papilio argyrios*, p. 29). Assuming Kirby (1871) to be essentially correct in his treatment of this species, *bipunctatus* Gmelin may be regarded as a species of the group now dealt with as *Autochton* Hübner; the most likely type-locality for *bipunctatus* would have been Surinam.

Kirby (1871) gave *bipunctatus* as a senior synonym of *Cecrops neis* Geyer. Mabille appears to have been the first to use both of these names for supposedly distinct species. Draudt (1922), according to Evans (1952), 'misidentified' *bipunctatus*, probably dealing with the species *longipennis* Plötz under that name. Very probably many of the authors dealing with *bipunctatus* as a separate species have variously misidentified it in Evans' sense. Evans (1952), while dealing with *neis* and *longi-*

pennis as separate species, treats *bipunctatus* as the senior synonym for *orontes* Plötz and *zonilis* Mabille. Barcant (1970) lists *bipunctatus* in the sense of Kaye (1904).

The need for a primary type-specimen for *Papilio bipunctatus* Gmelin is apparent. To satisfy this requirement in a manner which least upsets existing usage, one of the male specimens studied by Evans (1952 : 125) from French Guiana, is here designated neotype of *Papilio bipunctatus* Gmelin. This specimen, in the BMNH, bears the labels /Guyane Française Collection C. Bar/R.Oberthür Coll. BM 1931–136/ Papilio bipunctatus Gmelin, Neotype ♂ det. R.I.V.–W. 1974./. This neotype is illustrated on Pl. 6, fig. 26.

Cecropterus orontes Plötz. I have been unable to locate any type-material of this name. Apparently no type-specimens exist in Berlin, where they might have been expected; possibly the original material is destroyed.

Cecropterus zonilis Mabile was described from an unstated number of specimens of unstated sex, from 'Columbia'. A single male now in the BMNH bears the labels /Colombia/zonilis Mb. orontes Pl./type/Ex Oberthür Coll. BM 1927–3/. This specimen, referred to by Evans (1952 : 125) as the 'type', is hereby designated lectotype of *Cecropterus zonilis* Mabille, and has been labelled accordingly (type no. Rh 17302). A further pair of specimens, possibly part of the original series, are not designated paralectotypes at this time.

Ablepsis fenestratus (Gmelin) [Hesperiidae]

(Pl. 6, fig. 27)

Papilio Plebeii Urbicolae sp., Zschach, 1788 : 95, no. 161*. 'Exoticus'.
Papilio fenestratus Gmelin, 1790 : 2360, no. 901. NEOTYPE ♂, French Guiana: Nouveau Chantier (MNHN), here designated [examined].
Papilio fenestratus; O'Reilly, 1813 : 77, no. 161. 'India'.
Papilio fenestratus Gmelin; Kirby, 1869 : 362.
Plesioneura fenestratus (Gmelin); Kirby, 1871 : 621.
Telemiades acutipennis Mabille & Boullet, 1912 : 120. Holotype ♂, French Guiana: Nouveau Chantier (MNHN) [examined]. [Synonymy originally from Evans, 1952 : 162; becomes objective synonym of *fenestratus* as result of action taken here.]
Papilio fenestratus Gmelin; Evans, 1949 : 477.
Ablepsis fenestratus (Gmelin); Evans, 1952 : 162.

Papilio fenestratus Gmelin. The original type-material has been destroyed. Kirby (1869 : 362) states that the type was then still in existence, but so broken that there was little chance of identification. Two years later, however, he placed it in *Plesioneura* (Kirby, 1871 : 621). Evans (1949 : 477) was unable to fit the original description of *fenestratus* to any true *Plesioneura* known, or any of the other Old World species then under review, but noted it to be in accord with the S. American *Telemiades acutipennis* Mabille & Boullet. Evans also noted that the type of *fenestratus* was no longer in existence, which I am able to confirm after studying the collection at Dublin. Evans (1952 : 162) finally placed *fenestratus* in *Ablepsis*, with *acutipennis* as a synonym. Evans studied only a single male, in the BMNH from French Guiana, and which I have closely compared with the holotype of *acutipennis* (Pl. 6, fig. 27). I can confirm Evans' identification, and to stabilise existing usage, I here designate the holotype of *Telemiades acutipennis* Mabille & Boullet as additionally the neotype of *Papilio fenestratus* Gmelin. This male specimen, now in the MNHN, bears the data label /French Guiana, Nouveau Chantier, E. le Loult/, and is illustrated on Pl. 6, fig. 27.

REPLACEMENT NAMES PROPOSED BY GMELIN

Syntarucus pirithous (Linnaeus) [Lycaenidae]

Papilio pirithous Linnaeus, 1767 : 790, no. 235. ALGERIA (type-material lost?).
Papilio philiasus Linnaeus, 1767 : 790, no. 233. ALGERIA (type-material lost?). Synonymy by Kirby, 1871 : 351.
Papilio telicanus Lang, 1789 : 47. FRANCE: southern (depository of type-material unknown). Synonymy by Higgins & Riley, 1970 : 251.
Papilio barbarus Gmelin, 1790 : 2352, no. 235. [Proposed as a replacement name for *Papilio pirithous* Linnaeus, 1767.]

Papilio barbarus Gmelin. As already shown (p. 25), Gmelin's number 235 was a reference to that of Linnaeus, and this name is an invalid replacement for *pirithous* Linnaeus, 1767.

Kirby (1870 : 149, 150) tentatively synonymized *P. pirithous* and *P. philiasus* as the male and female of the same species, adding that the latter might also be conspecific with *P. amyntas* Fabricius. A year later Kirby (1871 : 351) confirmed the synonymy of *P. philiasus*, *P. pirithous* and *P. barbaras* and acted as first reviser in giving priority to the first over the second. At the same time he moved *P. amyntas* Fabricius to the synonymy of another species (p. 356). Finally, citing the same reference, he placed it as a Hesperiid (p. 605). By a coincidence, the true *P. amyntas* Fabricius (also a junior homonym) features under the next species below. Strong support for Kirby's synonymy of *P. philiasus* and *P. pirithous* as sexual dimorphs can be drawn from their original descriptions, in which for both Linnaeus wrote 'Habitat Algiriae, Brunniche'. Martin T. Brünnich (1737–1827) of Copenhagen was a correspondent of Linnaeus. He probably 'communicated' the descriptions, and his insects were probably captured flying together.

As far as can be judged at present, *Syntarucus pirithous* (Linnaeus) has as subjective synonyms *Papilio philiasus* Linnaeus and *Papilio telicanus* Lang, with *Papilio barbarus* Gmelin an objective synonym. However, no type-material has been traced, and further research is desirable. Staudinger & Rebel (1901 : 76, no. 530 and *n*) provisionally linked the first three names.

Polygonus leo leo (Gmelin) [Hesperiidae]

Papilio amyntas Fabricius, 1775 : 533, no. 384. 'In America' (2 specimens in Kiel; see Zimsen, 1964 : 518). [Homonym of *Papilio amyntas* Poda, 1761.]
Papilio leo Gmelin, 1790 : 2363, no. 836. [Proposed as replacement name for *Papilio amyntas* Fabricius, 1775.]
Polygonus leo leo (Gmelin); Evans, 1952 : 54.

Gmelin evidently noted the homonymy of *Papilio amyntas* Fabricius, and proposed *leo* as a new name for it. The reader is referred to Evans (1952 : 54) for the full synonymy of this neotropical skipper. Gmelin also noted the name *Papilio phocus* Cramer, 1777, as a possible synonym. *P. phocus* is now regarded as a valid species, being the type-species of the genus *Nascus* Watson.

Perichares philetes philetes (Gmelin) [Hesperiidae]

Papilio coridon Fabricius, 1775 : 533, no. 385. 'In Iamaica' [JAMAICA] (2 specimens in Glasgow; see Zimsen, 1964 : 518). [Homonym of *Papilio coridon* Poda, 1761.]
Papilio philetes Gmelin, 1790 : 2364, no. 842. [Proposed as replacement name for *Papilio coridon* Fabricius, 1775.]
Perichares philetes philetes (Gmelin); Evans, 1955 : 255.

Gmelin evidently noted the homonymy of *Papilio coridon* Fabricius, and put forward the name *philetes* as a replacement. Gmelin also included the name *Papilio talus* Cramer, 1777, with this species, but *talus* is now regarded as a valid species of the genus *Astraptes* Hübner. *Papilio coridon* Fabricius is the type-species of the genus *Perichares* Scudder. Hemming (1967 : 352) states that *philetes* Gmelin is the oldest valid name 'subjectively applicable to the type-species of this genus'. In my opinion, *philetes* was proposed as a replacement name, and is therefore objectively applicable to the type-species of *Perichares*.

BUTTERFLIES DESCRIBED IN *MUSEUM LESKEANUM* BUT NOT NAMED BY GMELIN AS NEW SPECIES

? ***Jamides celeno*** (Cramer) [Lycaenidae]

Papilio Plebeii Rurales sp., Zschach, 1788 : 93, no. 122 (? *celerio* [sic]). 'Exoticus'.
? *Papilio celeno* Cramer; Gmelin, 1790 : 2339, no. 705. 'Surinamo'.
Papilio celerio [sic]; O'Reilly, 1813 : 76, no. 122. 'Surinam'.

Papilio sp. no. 122, *Museum Leskeanum*. Zschach, in his description, cryptically indicates that this species may be *Papilio* '*celerio*' (after Fabricius), correctly *celeno* Cramer (1775 : 51, pl. 31, figs C, D), described as from Surinam. Cramer's species is now recognized as a widespread member of the Indo-Australian genus *Jamides*. Gmelin (1790 : 2339) repeats Zschach's doubtful identity when dealing with *celeno*. O'Reilly (1813 : 76) places the species without question as '*celerio*', thus repeating the incorrect spelling of Zschach, which stemmed originally from that of Fabricius.

Assuming that the identity with the rather distinctive *celeno* is essentially correct, it would seem very likely that *Papilio* no. 122 actually referred to *Jamides celeno sandya* Fruhstorfer, the subspecies to be found on Ambon. The original material has apparently been destroyed.

? ***Cupido lunulatus*** (Gmelin) [Lycaenidae]

Papilio Plebeii Rurales sp., Zschach, 1788 : 93, no. 130*. 'Eur[ope]'.
Papilio lunulatus; O'Reilly, 1813 : 76, no. 130. 'Europe'.

Papilio sp. no. 130*, *Museum Leskeanum.* Gmelin apparently did not take this species into account. O'Reilly referred it to *Papilio lunulatus*, named by Gmelin on the basis of *Papilio* no. 132 of Zschach. As dealt with above, *lunulatus* itself has never been recognized, and although the specimens of Papilios 130 and 132 were evidently both in Dublin in 1813, neither has survived to the present time.

ZSCHACH, CRAMER, AMBON AND SURINAM

Kirby (1869 : 362) makes the following comment about Zschach's work: 'Zschach quotes Linnaeus and Fabricius, but not Cramer or any other authors; in fact, he would seem to have been quite unacquainted with Cramer's work, as it will be noticed that he redescribes several species figured in Pap. Exot.'

As dealt with here, four of the species named by Gmelin from Zschach's descriptions are strictly synonymous with Cramer or Stoll names, and five likewise with Linnaean names. At first sight it may appear odd that such a high proportion of synonyms should be created at a time when only a fraction of the exotic fauna had been described. The answer lies in the limited provenance of much of the early material. I estimate that at least 18 of the 25 species described by Zschach were either from Surinam or Ambon, both major sources for species described by Linnaeus, Cramer, Stoll and others during the latter part of the 18th century. This is turn may be explained by the activities of the Dutch, who from the 16th century had merchants and soldiers travelling the world. These people often brought back 'trophies', notably from their colonies Ceylon, Java, Surinam and Ambon, and thus large quantities of natural history specimens had already accumulated from these places by the middle of the 18th century. Ambon (or Amboina) in particular, despite its small size, was a principal source, no doubt due to its importance as a Dutch military headquarters.

With regard to the synonymy of the Gmelin butterfly names, relevant information concerning the Indo-Australian species described by Linnaeus is presented in a series of papers by Corbet (1941*a*; 1941*b*; 1942; 1945; 1949). No similar work exists for the many species described by Cramer and Stoll; the need has not been so acute due to the quality of their original illustrations. So far as I can judge, it has generally been assumed that the Cramer and Stoll specimens, with the possible exception of some material in Leiden (see below), have been lost or destroyed. The following notes relate to the realization in recent years that a percentage of the Cramer material apparently survives among material now preserved in the British Museum (Natural History).

The text of *De Uitlandsche Kappelen* by Cramer, and as continued by Stoll, bears a number of references to the 'rich cabinet of C. van Lennep' and also that of J. C. Sylvius van Lennep; (Cramer, 1775 : [v]). According to Horn & Kahle (1935 : 47; 1936 : 287), the collection of Pieter Cramer passed via C. van Lennep (or one 'van Lennep') to either A. J. van Eyndhoven (whose collections were auctioned in Rotterdam in 1861) or C. V. Felder. The collection of the latter passed to Walter Rothschild, and thus finally to the BMNH. The Rothschild collection contains a considerable number of specimens, ex Felder, which appear to be Cramer, or, at least, van Lennep material. Many of these bear characteristic labels, with the specific name as given in Cramer written in seraph italic capitals, together with a reference to the appropriate plate. The style of the script bears a very close resemblance to the caligraphy employed in the frontispiece to the plates of Cramer (1775). Some of these specimens also bear circular blue labels of the form employed by Felder, and which normally refer to a country of origin, plus the designation 'Lenep' or 'Lenip'. It thus seems that the source of any likely Cramer material in the Felder collection was indeed one or both of the little-known van Lenneps, and that any specimen bearing reference to 'Lenep', etc., whether it carries a 'Cramer label' or not, should be examined very closely. The BMNH also possesses the original pattern plates for the works of Cramer and Stoll, which facilitates the necessary comparisons. Experience has shown that while a number of specimens with 'Cramer labels' may reasonably be accepted as part of the original type-series, others do not correspond closely enough to the original illustrations at an *individual* level to be accepted unhesitatingly as original type-material. Similarly, some specimens without the Cramer label, but with a Lennep label, seem almost certainly to be type-specimens. Each case has to be treated individually. Eventually it may be possible to produce a catalogue of all such butterfly specimens in the BMNH, cross-checked with material in Leiden (see below).

An as yet unsolved mystery concerns the inclusion of a 'Cramer label' of the type under discussion in Horn & Kahle (1936 : pl. 26, fig. 4). A label of the supposed Cramer type is clearly shown in the photograph, but the caption ascribes it to 'Halbton'. There is no other reference to Halbton in Horn & Kahle, and in fact I have been quite unable to discover any entomologist of such a name. I suggest that Mr Halbton, whose name translated into English means half-tone or semi-tone, is chimerical. It seems to me most likely that the 'Cramer labels' were written either by Cramer, Stoll or C. van Lennep.

With respect to Cramer types in Leiden, Dr R. de Jong (personal communication) informs me that there appear to be none which certainly pertain to the Cramer and Stoll names discussed in the present paper. Dr de Jong also indicates that at present there is no general account of the Cramer material in Leiden. The probable Cramer specimens in the RNH evidently stem from the collections of Raye de Breukelerwaert, M. van der Meulen and van Lennep. Other Cramer material may exist in the Calkoen collection. According to Dr de Jong it is almost impossible to find any particular specimen which perfectly agrees with the figures given in Cramer and Stoll. In my opinion the illustrations in *De Uitlandsche Kappelen* are both somewhat stylised and idealised, but in a very subtle manner.

SUMMARY OF TYPE INFORMATION

GMELIN NAMES. The following names described by Gmelin into the genus *Papilio* are dealt with in this paper:

*aethiops**, *affinis**, *annulatus**, *argyrios*, *barbarus*, *bicolor**, *bifasciatus*, *bipunctatus*, *chrysopterus**, *claviger**, *discors**, *exoticus**, *fenestratus*, *fuliginosus**, *hexopthalmos**, *hyalinus*, *lacteolus**, *leo*, *leucostictos**, *lunulatus*, *marinus**, *oculatus*, *philetes*, *strigosus**, *sulpitia* and *vidua*.

Those names for which lectotypes have been designated are marked with an asterisk. In addition neotypes have been designated for *bipunctatus*, *fenestratus* and *hyalinus*.

TYPE-MATERIAL OF OTHER AUTHORS. Lectotype specimens have been designated in the present work for a number of nominal species described by authors other than Gmelin. These are listed alphabetically by author below, in their original combinations:

Euplaea aglidice Boisduval, *Danais leopardus* Butler, *Pyrrhopyga hospita* Butler, *Papilio calisto* Cramer, *Papilio itys* Cramer, *Euploea pasithea* Felder & Felder, *Danaida juventa ogylla* Fruhstorfer, *Danaida limniace mutina* Fruhstorfer, *Delias dorimene avenda* Fruhstorfer, *Danais meganire* Godart, *Danais prothoe* Godart, *Pieris philyra* Godart, *Radena buruensis* Holland, *Tenaris nysa* Hübner, *Papilio ceneus* Linnaeus, *Papilio hecabe* Linnaeus, *Papilio pandarus* Linnaeus, *Papilio pipleis* Linnaeus, *Papilio urania* Linnaeus, *Cecropterus zonilis* Mabille, *Salpinx oculata* Moore, *Pyrrhopyga ulixes* Plötz and *Papilio cupentus* Stoll.

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BUTTERFLIES NAMED BY GMELIN

Synonyms are in *italics*.

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aethiops, 49
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Alcidis, 30
alea, 36
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amyntas, 53, 54
ancaeus, 25
annulatus, 47
anthyparete, 32, 33
Antirrhea, 24, 46
anzuletta, 44
argyrios, 23, 29
avenda, 34

barbarus, 25, 53
bicolor, 31
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sulpitia, 46

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urania, 39, 41

vidua, 47
vulpecula, 44
vulpina, 44

Zaretis, 44
zethus, 43
zonilis, 51, 52

R. I. VANE-WRIGHT, B.Sc.
Department of Entomology
BRITISH MUSEUM (NATURAL HISTORY)
CROMWELL ROAD
LONDON SW7 5BD

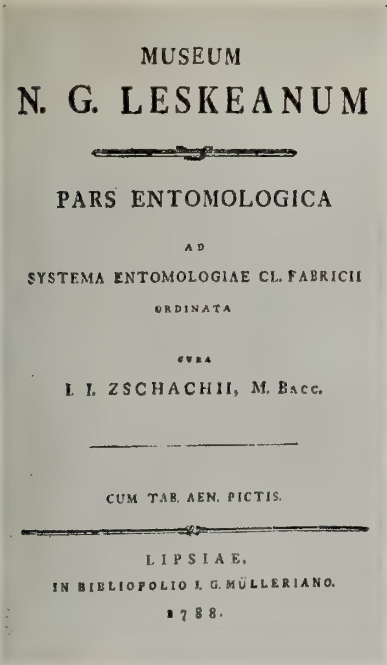
PLATE 1

Fig. 1. Title page of *Museum N. G. Leskeanum, Pars Entomologica,* by I. I. Zschach (1788).

Fig. 2. Title page of *Museum Leskeanum, Regnum Animale,* volume 1, by D. L. G. Karsten (1789).

Fig. 3. Page from Karsten (1789) prefacing Class 5, the Insecta, which comprises an inclusion of the *Pars Entomologica* (Zschach, 1788).

Fig. 4. Title page from O'Reilly's Dublin Society catalogue (1813).



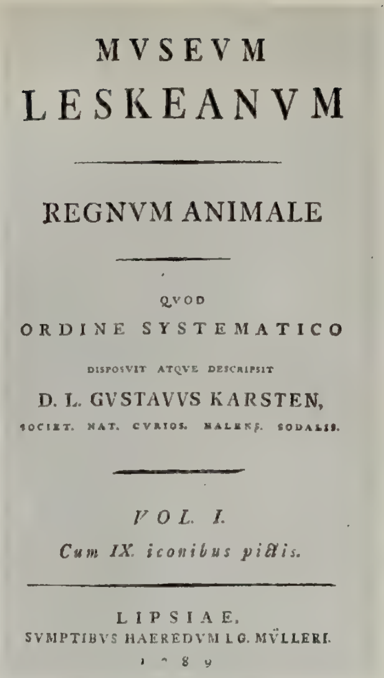
MUSEUM
N. G. LESKEANUM

PARS ENTOMOLOGICA
AD
SYSTEMA ENTOMOLOGIAE CL. FABRICII
ORDINATA
CVRA
I. I. ZSCHACHII, M. Bacc.

CUM TAB. AEN. PICTIS.

LIPSIAE,
IN BIBLIOPOLIO I. G. MÜLLERIANO.
1788.

1



MVSEVM
LESKEANVM

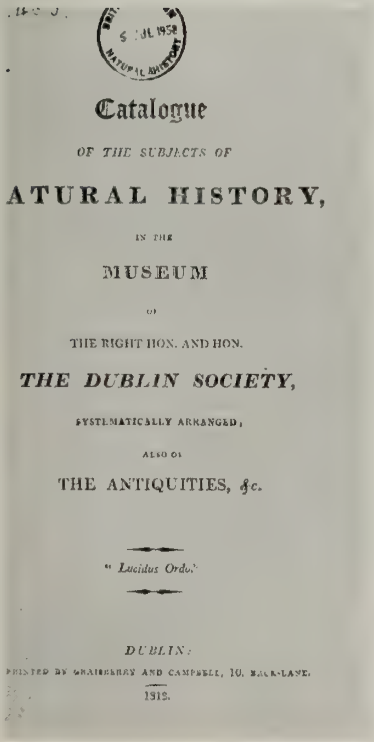
REGNVM ANIMALE

QVOD
ORDINE SYSTEMATICO
DISPOSVIT ATQVE DESCRIPSIT
D. L. GVSTAVVS KARSTEN,
SOCIET. NAT. CVRIOS. HALENS. SODALIS.

VOL. I.
Cum IX. iconibus pictis.

LIPSIAE,
SVMPTIBVS HAEREDVM I. G. MVLLERI.
1789

2



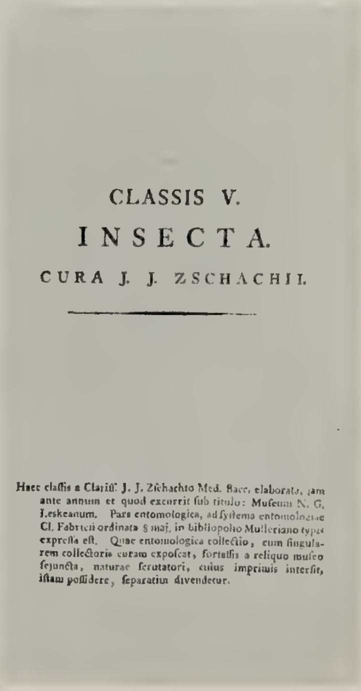
5 JUL 1958
NATURAL HISTORY

Catalogue
OF THE SUBJECTS OF
[N]ATURAL HISTORY,
IN THE
MUSEUM
OF
THE RIGHT HON. AND HON.
THE DUBLIN SOCIETY,
SYSTEMATICALLY ARRANGED;
ALSO OF
THE ANTIQUITIES, *&c.*

" *Lucidus Ordo.*"

DUBLIN:
PRINTED BY GRAISBERRY AND CAMPBELL, 10, BACK-LANE.
1813.

4



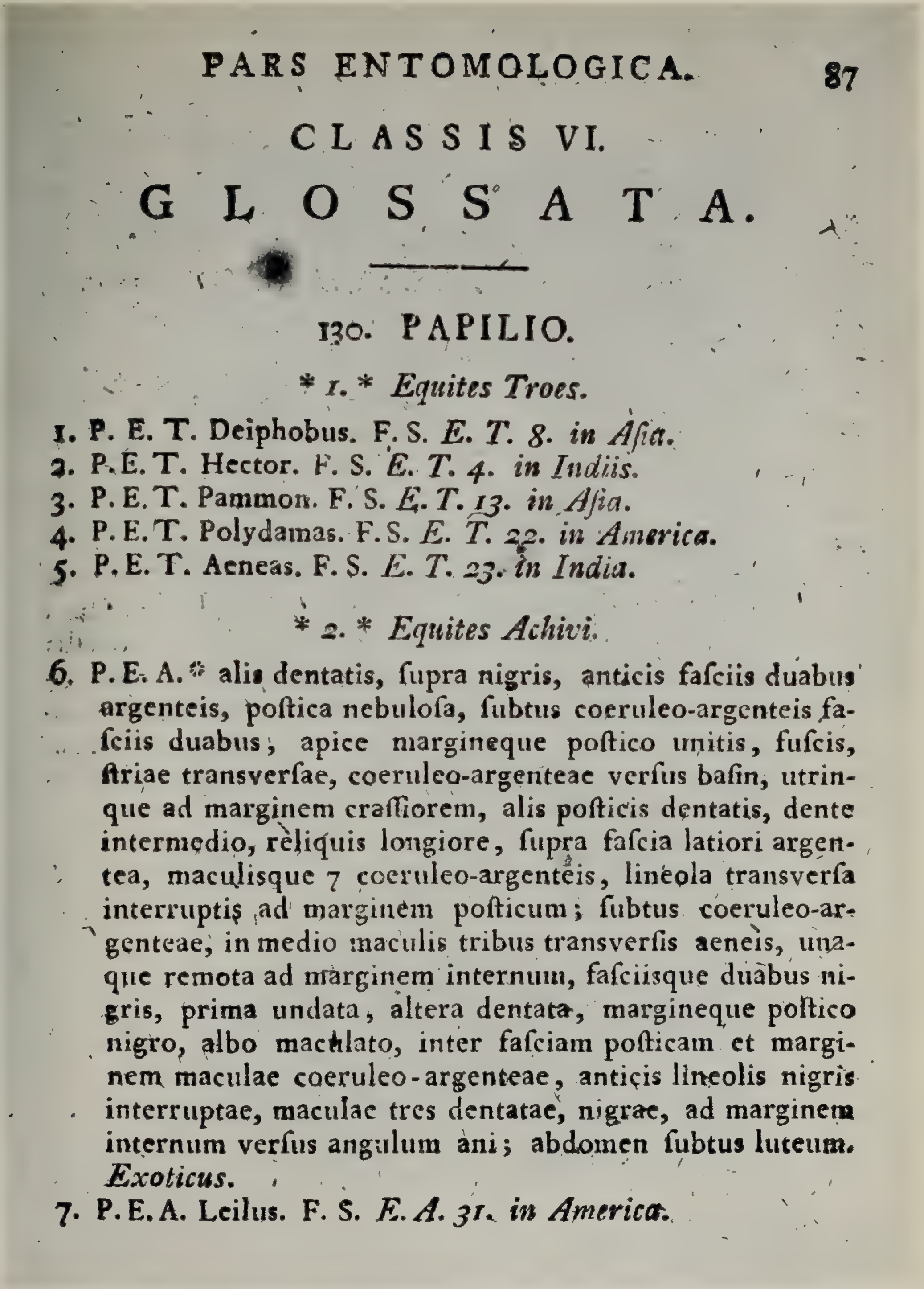
CLASSIS V.
INSECTA.
CURA J. J. ZSCHACHII.

Haec claſſis a Clariſſ. J. J. Zſchachio Med. Bacc. elaborata, iam ante annum et quod excurrit ſub titulo: Muſeum N. G. Leskeanum. Pars entomologica, ad ſyſtema entomologiae Cl. Fabricii ordinata 8 maj. in bibliopolio Mulleriano typis expreſſa eſt. Quae entomologica collectio, cum ſingularem collectoris curam expoſcat, fortaſſis a reliquo muſeo ſejuncta, naturae ſcrutatori, cuius imprimis interſit, iſtam poſſidere, ſeparatim divendetur.

3

PLATE 2

FIG. 5. Page 87 of Zschach (1788), showing the first seven species of *Papilio*. The unnamed no. 6 was subsequently named *argyrios* by Gmelin (1790) and finally *leskii* by O'Reilly (1813); it is now considered to represent the moth species *Alcides orontes* (L).



PARS ENTOMOLOGICA. 87

CLASSIS VI.

GLOSSATA.

130. PAPILIO.

* 1. * *Equites Troes.*

1. P. E. T. Deiphobus. F. S. *E. T. 8. in Aſia.*
2. P. E. T. Hector. F. S. *E. T. 4. in Indiis.*
3. P. E. T. Pammon. F. S. *E. T. 13. in Aſia.*
4. P. E. T. Polydamas. F. S. *E. T. 22. in America.*
5. P. E. T. Aeneas. F. S. *E. T. 23. in India.*

* 2. * *Equites Achivi.*

6. P. E. A. * alis dentatis, ſupra nigris, anticis faſciis duabus argenteis, poſtica nebuloſa, ſubtus coeruleo-argenteis faſciis duabus, apice margineque poſtico unitis, fuſcis, ſtriae transverſae, coeruleo-argenteae verſus baſin, utrinque ad marginem craſſiorem, alis poſticis dentatis, dente intermedio, reliquis longiore, ſupra faſcia latiori argentea, maculisque 7 coeruleo-argenteis, lineola transverſa interruptis ad marginem poſticum; ſubtus coeruleo-argenteae, in medio maculis tribus transverſis aeneis, unaque remota ad marginem internum, faſciisque duabus nigris, prima undata, altera dentata, margineque poſtico nigro, albo maculato, inter faſciam poſticam et marginem maculae coeruleo-argenteae, anticis lineolis nigris interruptae, maculae tres dentatae, nigrae, ad marginem internum verſus angulum ani; abdomen ſubtus luteum. *Exoticus.*
7. P. E. A. Leilus. F. S. *E. A. 31. in America.*

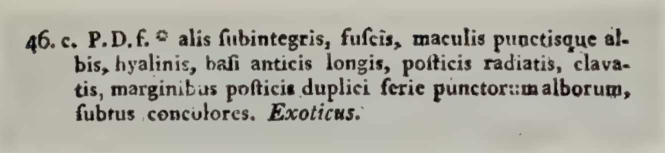
PLATE 3

FIG. 6. Entry on page 89 of Zschach (1788) for the unnamed '*Papilio* 46c'.

FIG. 7. The description of *Papilio claviger* Gmelin (1790 : 2289) as it appears in the 13th *Systema Naturae* (cf. fig. 6).

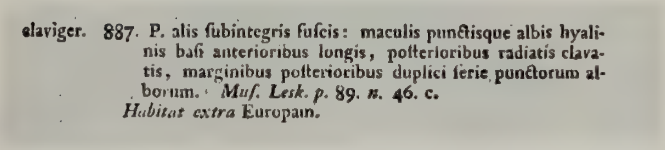
FIG. 8. Part of p. 75 of O'Reilly (1813); compare the entry for *Papilio* 46c with figs 6, 7.

FIG. 9. The entry by Kirby (1869 : 358), in his work on the Gmelin names, for *Papilio claviger*.



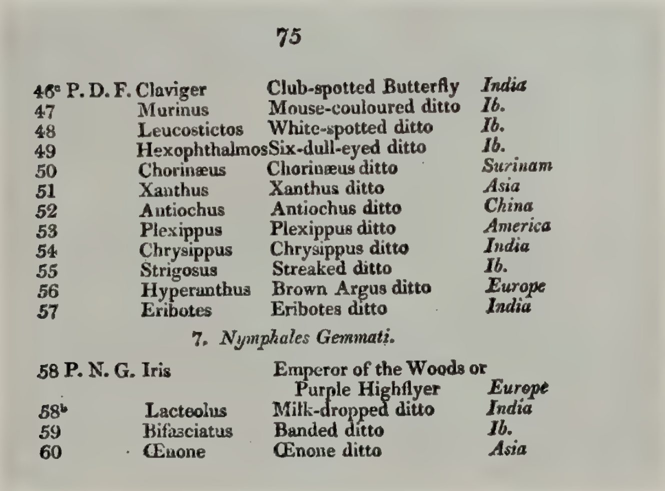
46. c. P. D. f. * alis ſubintegris, fuſcis, maculis punctisque albis, hyalinis, baſi anticis longis, poſticis radiatis, clavatis, marginibus poſticis duplici ſerie punctorum alborum, ſubtus concolores. *Exoticus.*

6



claviger. 887. P. alis ſubintegris fuſcis: maculis punctisque albis hyalinis baſi anterioribus longis, poſterioribus radiatis clavatis, marginibus poſterioribus duplici ſerie punctorum alborum. *Muſ. Lesk. p.* 89. *n.* 46. c.
Habitat extra Europam.

7



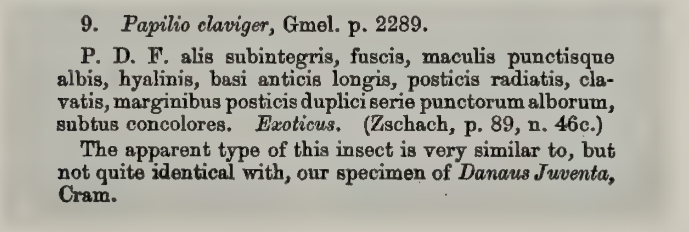
75

46ᶜ P. D. F.	Claviger	Club-spotted Butterfly	*India*
47	Murinus	Mouse-couloured ditto	*Ib.*
48	Leucostictos	White-spotted ditto	*Ib.*
49	Hexophthalmos	Six-dull-eyed ditto	*Ib.*
50	Chorinæus	Chorinæus ditto	*Surinam*
51	Xanthus	Xanthus ditto	*Asia*
52	Antiochus	Antiochus ditto	*China*
53	Plexippus	Plexippus ditto	*America*
54	Chrysippus	Chrysippus ditto	*India*
55	Strigosus	Streaked ditto	*Ib.*
56	Hyperanthus	Brown Argus ditto	*Europe*
57	Eribotes	Eribotes ditto	*India*

7. *Nymphales Gemmati.*

58 P. N. G.	Iris	Emperor of the Woods or Purple Highflyer	*Europe*
58ᵇ	Lacteolus	Milk-dropped ditto	*India*
59	Bifasciatus	Banded ditto	*Ib.*
60	Œnone	Œnone ditto	*Asia*

8



9. *Papilio claviger,* Gmel. p. 2289.

P. D. F. alis subintegris, fuscis, maculis punctisque albis, hyalinis, basi anticis longis, posticis radiatis, clavatis, marginibus posticis duplici serie punctorum alborum, subtus concolores. *Exoticus.* (Zschach, p. 89, n. 46c.)

The apparent type of this insect is very similar to, but not quite identical with, our specimen of *Danaus Juventa,* Cram.

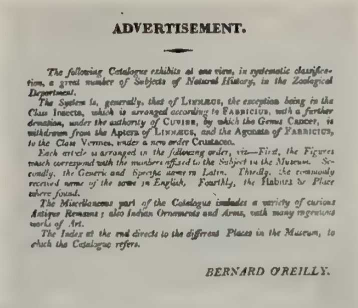
9

PLATE 4

FIG. 10. The 'Advertisement' by Bernard O'Reilly which prefaces his 1813 catalogue of the Dublin Society collection.

FIG. 11. Part of p. 73 of O'Reilly (1813), showing the commencement of the butterflies and including the introduction of the name *Papilio leskii* (cf. Pl. 2, fig. 5).

FIG. 12. Entry in the British Museum (Natural History) library catalogue (1910) for the book on Greenland, etc., by Bernard O'Reilly (1818).



ADVERTISEMENT.

The following Catalogue exhibits at one view, in systematic classification, a great number of Subjects of Natural History, in the Zoological Department.

The System is, generally, that of LINNÆUS, *the exception being in the Class* Insecta, *which is arranged according to* FABRICIUS, *with a further division, under the authority of* CUVIER, *by which the Genus* Cancer, *is withdrawn from the* Aptera *of* LINNÆUS, *and the* Agonata *of* FABRICIUS, *to the Class* Vermes, *under a new order* Crustacea.

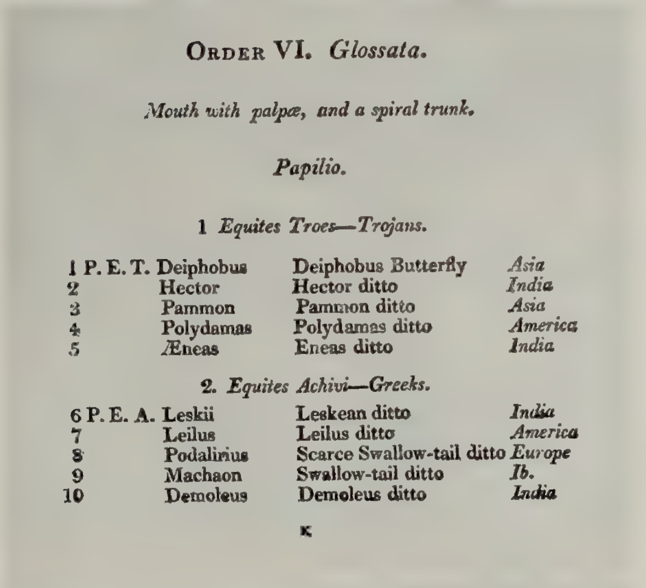
Each article is arranged in the following order, viz—First, the Figures which correspond with the numbers affixed to the Subject in the Museum. Secondly, the Generic and Specific name in Latin. Thirdly, the commonly received name of the same in English. Fourthly, the Habits & Place where found.

The Miscellaneous part of the Catalogue includes a variety of curious Antique Remains; also Indian Ornaments and Arms, with many ingenious works of Art.

The Index at the end directs to the different Places in the Museum, to which the Catalogue refers.

BERNARD O'REILLY.

10



ORDER VI. *Glossata.*

Mouth with palpæ, and a spiral trunk.

Papilio.

1 *Equites Troes—Trojans.*

1 P. E. T.	Deiphobus	Deiphobus Butterfly	*Asia*
2	Hector	Hector ditto	*India*
3	Pammon	Pammon ditto	*Asia*
4	Polydamas	Polydamas ditto	*America*
5	Æneas	Eneas ditto	*India*

2. *Equites Achivi—Greeks.*

6 P. E. A.	Leskii	Leskean ditto	*India*
7	Leilus	Leilus ditto	*America*
8	Podalirius	Scarce Swallow-tail ditto	*Europe*
9	Machaon	Swallow-tail ditto	*Ib.*
10	Demoleus	Demoleus ditto	*India*

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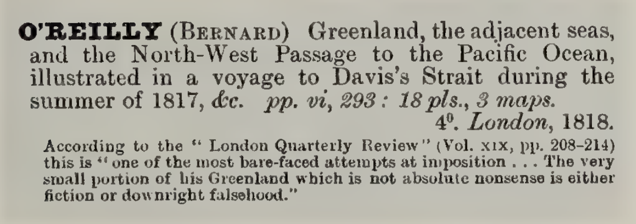

O'REILLY (BERNARD) Greenland, the adjacent seas, and the North-West Passage to the Pacific Ocean, illustrated in a voyage to Davis's Strait during the summer of 1817, *&c. pp. vi, 293 : 18 pls., 3 maps.*
4⁰. *London*, 1818.

According to the "London Quarterly Review" (Vol. XIX, pp. 208–214) this is "one of the most bare-faced attempts at imposition . . . The very small portion of his Greenland which is not absolute nonsense is either fiction or downright falsehood."

12

PLATE 5

FIGS 13, 14. Entries for *Danaus meganire* (p. 5) and *D. claviger* (p. 8) in Kirby's catalogue (1871).

FIG. 15. Entry on p. 691 of the *Supplement* (1877) to Kirby's catalogue, showing the synonymy of *claviger* and *meganire*.

FIG. 16. The cryptic entry '19 = no. 29', which is the original synonymy of *claviger* with *meganire*, appearing on p. 639 of the *Appendix* to Kirby's catalogue (1871).

FIGS 17, 18. Examples of manuscript entries by W. F. Kirby in the interleaved copy of Zschach (1788) in the National Museum of Ireland.

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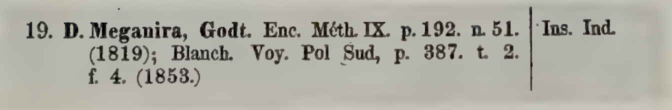
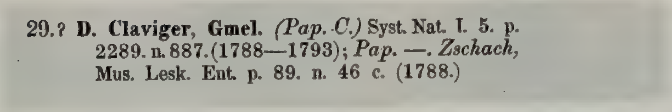


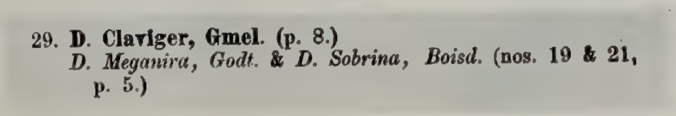
19. **D. Meganira, Godt.** Enc. Méth. IX. p. 192. n. 51. (1819); Blanch. Voy. Pol Sud, p. 387. t. 2. f. 4. (1853.) | Ins. Ind.

14



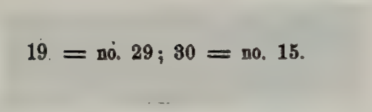
29.? **D. Claviger, Gmel.** *(Pap. C.)* Syst. Nat. I. 5. p. 2289. n. 887. (1788—1793); *Pap. —. Zschach,* Mus. Lesk. Ent. p. 89. n. 46 c. (1788.)

15



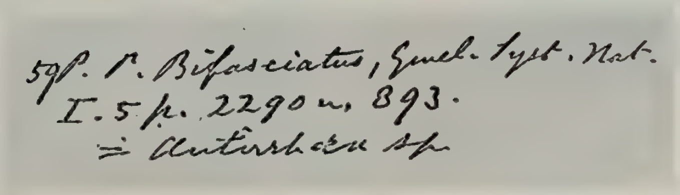
29. **D. Claviger, Gmel. (p. 8.)**
D. Meganira, Godt. **&** *D. Sobrina, Boisd.* **(nos. 19 & 21, p. 5.)**

16



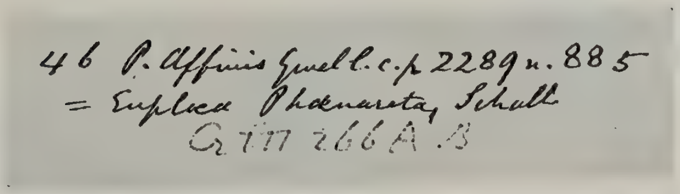
19 = no. 29; 30 = no. 15.

17



59β. P. Bifasciatus, Gmel. Syst. Nat.
I. 5 p. 2290 n. 893.
= Antirrhaea sp.

18



46 P. Affinis Gmel l.c. p 2289 n. 885
= Euploea Phaenareta, Schall
G.777 266 A.B

PLATE 6

FIG. 19. *Pierella hyalinus hyalinus* (Gmelin), neotype ♀, Surinam, Lenep; this specimen is the one believed to have been figured by Cramer [1780 : 5, pl. 291, figs A, B] as *Papilio lena* Linnaeus (fore wing length 37·5 mm; BMNH).

FIG. 20. *Danus juventa claviger* (Gmelin), ♂, Indes Orientales [? Ambon]; lectotype of *Danais meganire* Godart (fore wing length 41 mm; MNHN).

FIGS 21, 22. *Danaus limniace exoticus* (Gmelin). (21) lectotype of *Danaida limniace mutina* Fruhstorfer, ♂, Ceylon 1889, Fruhstorfer (fore wing length 45 mm; BMNH); (22) lectotype of *Danaus leopardus* Butler, ♂, N. India (fore wing length 49 mm; BMNH).

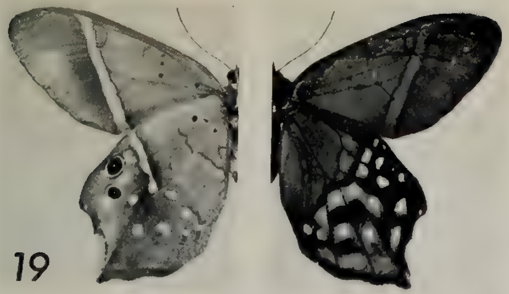
FIG. 23. *Jemadia hospita hospita* (Butler), ♂, 'Surinam' [false locality?]; lectotype of *Pyrrhopyga ulixes* Plötz (fore wing length 27·5 mm; MNHU).

FIG. 24. *Jemadia hospita hephaestos* (Plötz), holotype ♀, Surinam (fore wing length 30 mm; MNHU).

FIG. 25. *Jemadia lisetta* Mabille & Boullet, ♂ syntype, Peru (fore wing length 27 mm; MNHN).

FIG. 26. *Autochton bipunctatus* (Gmelin), neotype ♂, French Guiana (fore wing length 21 mm; BMNH).

FIG. 27. *Ablepsis fenestratus* (Gmelin), neotype ♂, French Guiana, Nouveau Chantier, Le Moult; this specimen is also the holotype of *Telemiades acutipennis* Mabille & Boullet (fore wing length 21 mm; MNHN).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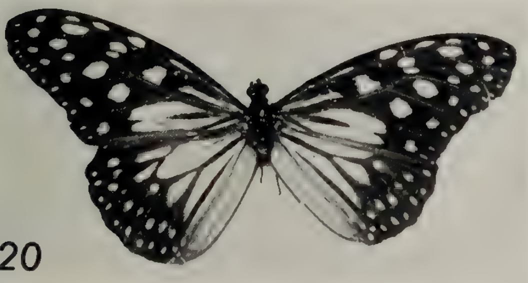
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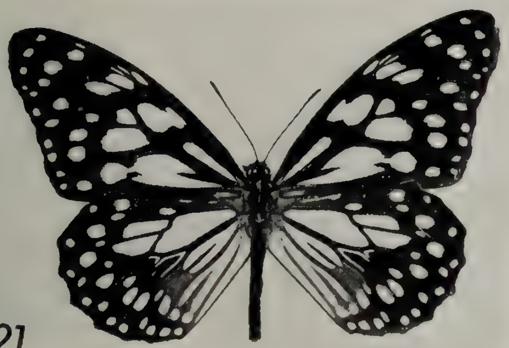
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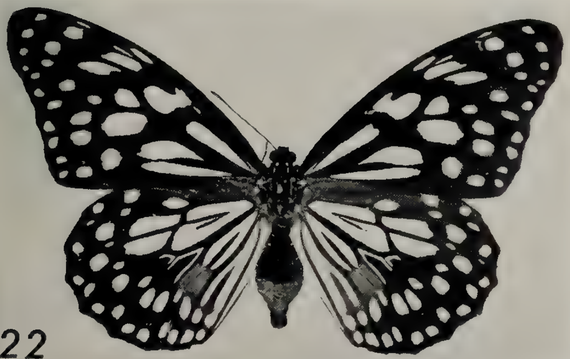
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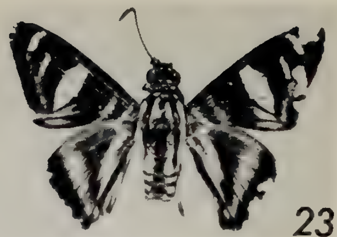
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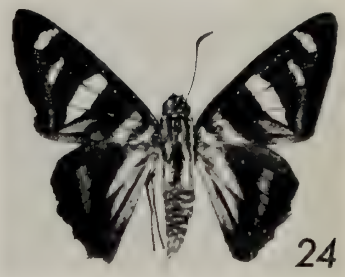
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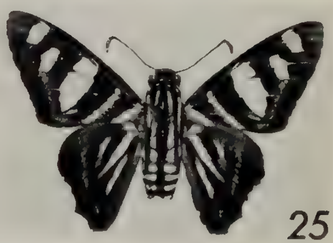
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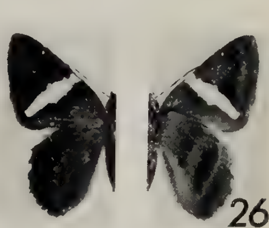
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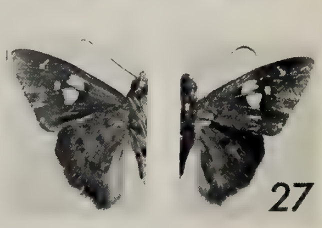
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REVISIONAL NOTES ON AFRICAN *CHARAXES, PALLA* AND *EUXANTHE* (LEPIDOPTERA : NYMPHALIDAE)

PART X

V. G. L. VAN SOMEREN

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
ENTOMOLOGY Vol. 32 No. 3
LONDON : 1975

REVISIONAL NOTES ON AFRICAN *CHARAXES, PALLA* AND *EUXANTHE* (LEPIDOPTERA : NYMPHALIDAE)

PART X

BY
VICTOR GURNER LOGAN VAN SOMEREN
The Sanctuary, Ngong, Karen, Kenya

Pp. 65–136; 19 *Plates*; 9 *Text-figures*; 3 *Maps*

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
ENTOMOLOGY Vol. 32 No. 3
LONDON : 1975

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REVISIONAL NOTES ON AFRICAN *CHARAXES, PALLA* AND *EUXANTHE* (LEPIDOPTERA : NYMPHALIDAE)

PART X

By V. G. L. VAN SOMEREN

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SYNOPSIS

This final part of the series deals with the *Palla* and *Euxanthe* complexes, each of which, following Rydon (1971 : 231), is regarded as constituting a separate subfamily. Three new subspecies are described in *Palla* and one in *Euxanthe*. A synoptic list of all the species and subspecies dealt with in this series is given, together with a complete list of references and a complete index to all ten parts; there is also a list of corrigenda to the earlier parts. In the Addenda section dealing with *Charaxes*, three new subspecies, one form and one aberration

are described, nine taxa of the 'black' *Charaxes* complex are raised to specific status and five new names are proposed to replace junior homonyms.

THE *PALLA* COMPLEX

In this complex there is a group of characteristic species, the males of which are confusingly alike, all conforming to a similar pattern on the upperside with black fore and hind wings crossed by conspicuous bars, white in the former and white and tawny orange-brown in the latter. The undersides also exhibit a very similar ground colour on both fore and hind wings, crossed by a white bar which passes through both. On the other hand, the females are more distinctive, one species having a male-like female, the others having females which are more sexually dimorphic.

Members of this complex are usually placed in the subfamily Charaxinae, but in view of the distinctive characters of their ova, larvae and pupae, which differ markedly from those of *Charaxes*, the restricted food-plants, which belong to the Convolvulaceae, the different habits and, moreover, the genitalia, which are distinctive and quite unlike those of *Charaxes*, I agree that they should be placed in a separate subfamily, the Pallinae, the name proposed by Dr A. H. B. Rydon (1971 : 230).

Aurivillius (1912) has pointed out that there are characters in the venation, especially in the hind wing, and mentions that the middle and hind tibiae are without spines above. These may be considered merely generic characters.

Schultze (1917 : 593–595) also has some cogent remarks to make on the genus.

For an account of the early stages see Schultze (1916 : 126) for ova and larvae, van Someren & van Someren (1926 : 350, pl. 77, figs 1, 2), van Someren & Rogers (1930 : 31, pl. 106) and Rydon (1971), also the line drawings which accompany these notes (see Text-figs 7–9, p. 79).

When considering the problem of zoogeographic variation, one must constantly keep in mind the fact that one is dealing with species distributed throughout several more or less well defined ecological areas which are as follows.

Occidental Africa, comprising Senegal, Guinea, Sierra Leone, Ivory Coast, Liberia, Ghana, to western Nigeria.

Eastern Nigeria, east of the Cross River, Cameroun, Central African Republic, Zaire, Congo (Brazzaville), N. Angola (a subdivision of this includes the south-western corner of Cameroun, Guinea and Gabon).

The Congo Basin, including the Kasai district to eastern Zaire, western Kivu district, Stanleyville, Nawamba-Beni-Irumu, west of the Semliki River.

The Katanga district.

The Central Rift areas: Rwanda, Burundi, S.W. Uganda, especially the Kigezi country, the Bwamba Valley west of Ruwenzori, and the districts of western Uganda. The eastern subdivision includes central Uganda and N. W. Kenya, Elgon area.

The north-western corner of Tanzania including the Kigoma district to the north-east of Lake Tanganyika.

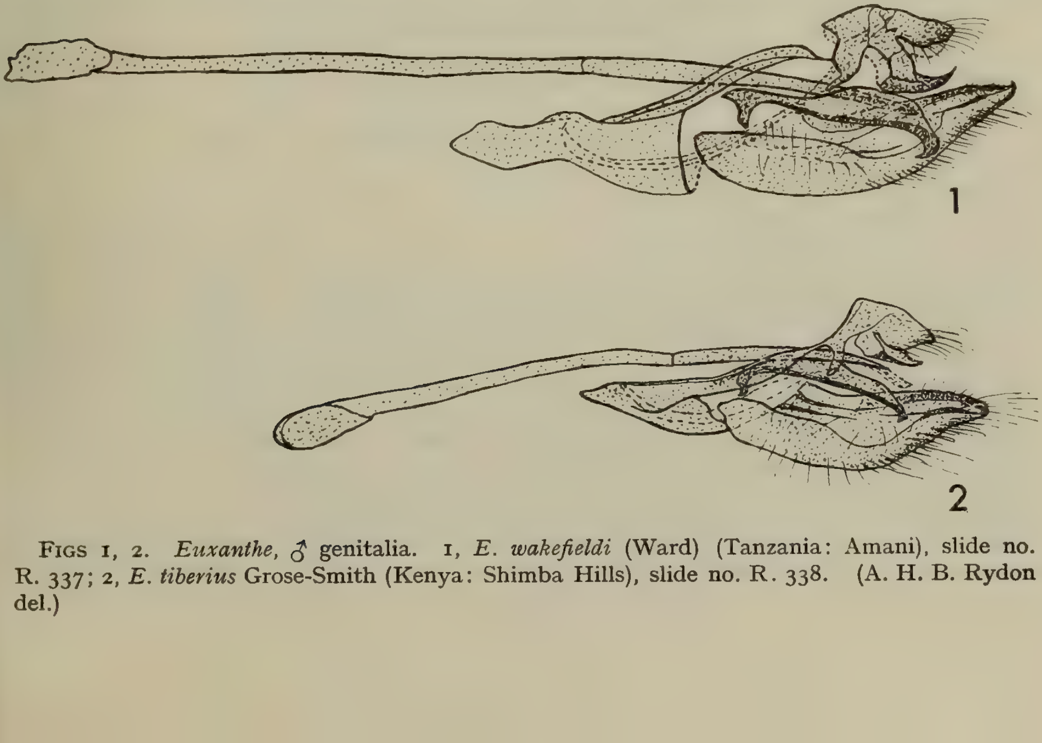
With the above in mind, one may attempt to solve the *Palla* problem. The species involved are: *Palla decius* (Cramer, 1777), *P. ussheri* (Butler, 1870) *P. violinitens* (Crowley, 1890) and *P. publius* Staudinger, 1892.

Palla decius (Cramer)

(Pl. 1, figs 1–4; Map 2)

Papilio decius Cramer, 1777 : 26, pl. 114, figs a, b.
Palla decius (Cramer) Kirby, 1871 : 273.
Palla decius f. *sagittarius* Rousseau-Decelle, 1934 : 235.

MALE. Fore wing length 38 mm. Shape falcate, but apex rounded; the outer margin concave at 4–5; hind angle projecting but rounded. *Upperside.* Fore wing, ground colour black, wing crossed by a white bar commencing just beyond the cell, 5 mm at costa and expanding gradually through spaces 2–3 and reaching the hind margin at mid point where it is 7 mm wide; its inner border with some blue scaling most conspicuous at end of cell and bases of 2–1*b*. Hind wing, ground colour black on border, slightly browner at base and inner fold where there is a whitish streak above the anal angle, the disc of the wing crossed by a white bar 5 mm wide at costa, reaching the upper part of the cell, then shading to orange and orange-tawny and expanding distally to the hind angle to reach vein 4. There is a conspicuous black rounded spot on submargin at vein 2 and an orange spot with white-centred black in the submargin above the orange-tawny tail at end of vein 4, with traces of a spot in cellule above. Edge of wing slightly undulating; anal angle squared, but rounded at tip. *Underside.* Fore wing, basal area rich brownish black, distally flanked by a conspicuous white bar, more or less as above; the distal portion of the wing with obscure silvery white ground in postdiscal zone, crossed by fine black lines in decreasing distance apart until on the border where the ground colour is uniform brownish black. Hind wing, basal area and greater part of inner



FIGS 1, 2. *Euxanthe*, ♂ genitalia. 1, *E. wakefieldi* (Ward) (Tanzania: Amani), slide no. R. 337; 2, *E. tiberius* Grose-Smith (Kenya: Shimba Hills), slide no. R. 338. (A. H. B. Rydon del.)

fold deep brownish black, finely lined on the inner fold, and sharply defined from the white bar which on its distal side and the border is silvery white with fine cross lines of increasing density toward the border, with some silvery rays at the edge above the tail and at anal angle. Margin rusty brown with whitish lunules proximally, carrying blue-black dots, enlarged to an ocellus in space 2, and some silvery scales at anal angle, but edge above the tail blackish brown.

FEMALE. Larger than the male, fore wing length 40 mm. Shape like that of the male, but slightly less falcate. *Upperside.* Fore wing, ground colour, base more brownish, distal portion also brownish. The white bar conspicuous as in the male but more curved on its inner edge, the upper portion of the bar shading to orange distally and on the outer edge, especially in spaces 4–3. Postdiscal zone with a series of tawny-orange spots, palest at costa and rather angled; spot in space 4 smaller and set in. Hind wing, base and upper part of inner fold brownish. Disc of wing crossed by a broad white bar of equal width, 4–5 mm wide, but tapering to above the hind angle. Border of wing brownish, with a series of pale rufous spots distally, from upper angle to tail; a marked ocellus with blue-black centre at 2; anal angle rufous with two white dots. Tail at end of vein 4 long and rounded at tip, 4–5 mm. *Underside.* Fore wing, basal area brown, edged black; a few dark lines margined in white in the cell, bordered distally by a whitish bar, sharply defined proximally but shading to buffy distally, the edge dyslegnic and merging into the greyish brown border which is lined with fine dark lines of increasing density, becoming brownish on the border. The disco-submarginal zone with a series of buffy ochreous spots corresponding to those above present, but rather obscured. Hind wing, basal area brown, similar spots to those of fore wing in disco-submarginal area but more lunate; a conspicuous ocellus at vein 2 with blue-centred black spot. Anal angle rufescent with two white dots; border of wing slightly rayed at upper angle and in the region of the tail; margin of wing rufescent with small whitish blue dots on admargin; edge brownish. The inner fold has fine dark lines.

The underside of this species is more variegated than the majority of those in the group.

RANGE. French Guinea, Sierra Leone, Congo (Brazzaville), Kasai and N. Angola.

Palla ussheri (Butler)

Palla ussheri ussheri (Butler)

(Pl. 1, figs 5–8; Pl. 2, figs 9, 10, 14; Text-fig. 3; Map 2)

Philognoma ussheri Butler, 1870 : 124.
Palla ussheri (Butler) Kirby, 1871 : 273.
Palla ussheri f. *ferruginea* Schultze, 1914 : 83.

MALE. Fore wing length 35 mm. Shape falcate but apex rounded; hind angle projecting slightly. *Upperside.* Fore wing, ground colour black, crossed by a conspicuous white bar, as in *decius*, but narrower throughout, the inner edge only slightly shaded with greyish, the portion in space 1*a* is oblique on its inner side. Hind wing, ground colour brownish black at base shading to brownish on inner fold; border of wing black, widest at 4–5, then tapering to above the hind angle; the intervening space at costa at vein 6 is white, then shading to orange and tawny-orange, clearly defined basad and extending to outer side of tail at vein 4, and on the inner border shading to brownish on the inner fold which has a pale spot at the anal angle; the space above the tail with black-centred orange spot and a more conspicuous black spot with white centre in space 2 of the submargin. Tail 4 mm long, slightly tapered, tip rounded and pale. *Underside.* Very similar to *decius* but rich brown of basal areas of both wings more curved on outer edge. Fore wing, cell with four black and white cross lines; the inner crossed by fine wavy black lines. The conspicuous white bar narrower, but expanded to 6 mm at the hind margin, its outer edge flanked by a zone of fine black lines darkening to a series of obscure dark spots in the submarginal zone which extends from the subapex to the hind margin; border brownish. Hind wing with narrow white bar, gently curved, accentuated proximally by black, and on its distal side flanked by fine black lines gradually becoming closer and more dense toward the submargin, but with a pale streak along vein 4. The submargin brownish black with brownish marks in admargin with increasing black, white-centred dots, that in space 2 forming a conspicuous ocellus with marked central spots and with a white line proximally; the anal angle more rufous with two white dots; edge brownish black.

FEMALE. Resembling female *decius* somewhat, but the colours brighter and stronger. *Upperside.* Fore wing, base dark brownish, paler along the inner fold; distal portion of wing blacker, the intervening white bar, strongly defined on its inner border, is shaded with orange and very faint wavy black lines distally, becoming less strong toward the hind border, 5 mm wide at costa and gradually widening to 11 mm at the hind margin. A conspicuous series of tawny orange spots present in the postdiscal submarginal line, small and pale at the costa, large in spaces 5–3 to the hind angle, the spot in 4 inset a little. Apex and border of wing brownish black. Hind wing, white bar slightly shaded with greyish proximally, and with orange distally, is 8 mm wide at the costa, slightly less at 4, then tapering to above the hind angle where there is a white streak. Distal portion of wing blackish, shading into the orange on the distal side of the white bar. In the submarginal area is a series of large orange spots, slightly paler proximally, the lower ones with purplish-centred dots developing into a conspicuous ocellus in 3; the anal angle with two white dots. Tail at end of vein 4 robust, rounded and pale at end, 5 mm long. *Underside.* Generally paler than in the male, the basal areas of both wings paler brown; fore wing, white bar outlined in black proximally, much narrower than above, being encroached upon by the greater extent of the wavy black lines, especially at the upper end. The submargin carries a series of confluent tawny-orange spots outlined in black at apical end, the two subapical spots whitish, partly obscured by the wavy lines; border of wing more uniform pale brownish. Hind wing with a restricted white bar sharply defined proximally, but reduced distally by the very dark lines which extend to the submargin where there is a series of tawny-orange spots, white-edged proximally and each bearing a white-centred black dot, strongly marked above the tail and represented in space 3 by a conspicuous ocellus which is shaded with olive distally. The anal angle is orange-tawny, with two white dots. Pale rays are present in the border along veins 4 and 6.

RANGE. Sierra Leone to west Nigeria, west of the Cross River.

♀ form ***dobelli*** Hall **stat. n.**

(Pl. 3, figs 19, 20; Map 2)

Palla dobelli Hall, 1919 : 199.

Described from a single female taken at Bitje, Cameroun, this specimen was placed as a form of *Palla moderata* Gaede, 1915, also from Cameroun, by Bryk (1939 : 547). It has also been placed under *Palla ussheri* and considered to have precedence over *ussheri interposita* Joicey & Talbot, 1925, described from Uganda.

In my opinion *dobelli* is one of the female forms found amongst the intermediate aggregate, ranging from Cameroun to E. Congo (Pl. 2, figs 12, 13, 15). In this aggregate, the males are very similar to nominate *ussheri*, both above and below, but the pattern is less contrasting. The same applies in a general way to the females, where the variation is from a specimen very similar to the nominate form, to one in which the upperside pattern is similar to that of the type *dobelli*, the underside pattern also less strong than in the nominate form.

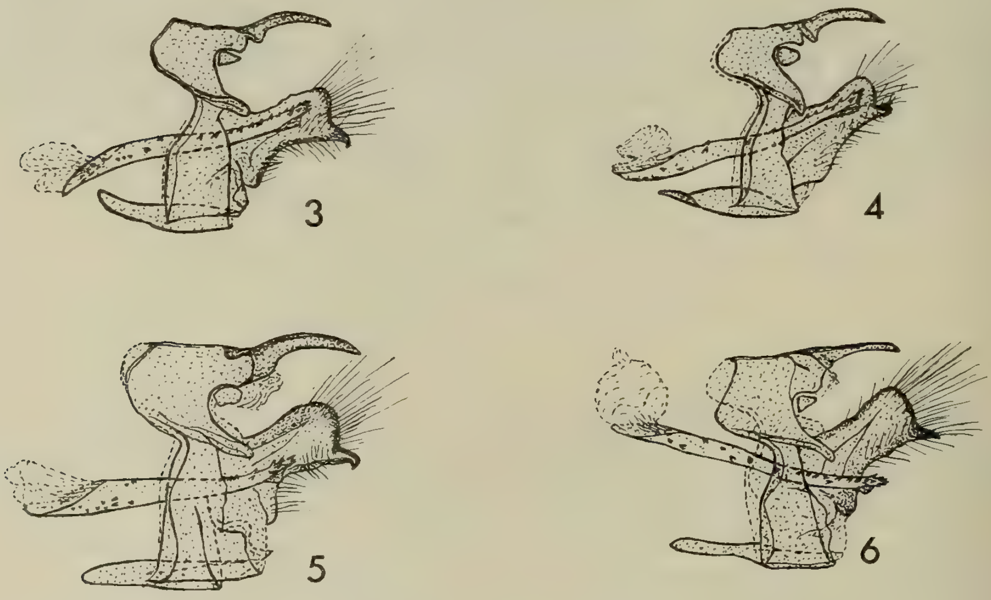
Palla ussheri interposita Joicey & Talbot

(Pl. 3, figs 18, 21–24; Pl. 4, fig. 25; Text-fig. 4; Map 2)

Palla ussheri interposita Joicey & Talbot, 1925 : 646.

MALE. Fore wing length 38–41 mm; shape as in the nominate race. *Upperside.* Compared with nominate *ussheri* general coloration and pattern very similar, but the fore wing white bar, though narrow at the costa expands to 8 mm at the hind margin and is shaded more with greyish proximally. The basal dark area not so blackish. The hind wing band, mainly orange to tawny-orange, though paler toward the costa, is wider, the orange area is less defined on its proximal border and wider at distal end but more restricted at base of tail, leaving the orange spot above the tail free. The ocellus towards tornus larger; the two white spots at anal angle more distinct. *Underside.* Forewing very similar to nominate race but basal areas paler brown; the hinder part of the white bar less expanded and the distal side of the bar more encroached upon by the wavy dark lines which, however, have satiny, obscure spots in the postdiscal line and in the subapex. Hind wing exhibits similar differences as on the fore wing, the satiny whitish rays at veins 4 and 6 more distinct, so also the submarginal silvery lunules; the ocellus at the outer margin larger and more conspicuous, the ground colour being more olive-brown; the tail dark but orange-tipped.

FEMALE. Larger than the male, fore wing length 42 mm. *Upperside.* Coloration rather different to that of the nominate race, much less strongly patterned. The basal areas of both wing bluish grey, slightly darker in the cell. Fore wing, white band strongly shaded with orange, leaving only a triangular white patch on proximal side; the band is 12 mm wide at the outer margin, the distal orange shading into the area of the postdiscal zone, reducing the width of



FIGS 3–6. *Palla*, ♂ genitalia. 3, *P. ussheri ussheri* (Butler) (Cameroun), slide no. R. 334; 4, *P. ussheri interposita* Joicey & Talbot (Uganda), slide no. R. 333; 5, *P. publius* Staudinger (Bipindi), slide no. 335; 6, *P. violinitens* (Crowley) (West Africa), slide no. R. 336. (A. H. B. Rydon del.)

the border and also causing the submarginal orange spots to be obscured. Hind wing, the inner edge of the white band is straighter, but suffused with orange distally, thus reducing the width of the dark border on which the orange spots are less distinct except at the hind border where the ocellus is very conspicuous. Tail at end of vein 4, 11 mm long, rufous but pale tipped. *Underside.* The general appearance of the underside is very similar to that of the nominate female, the main differences are in the reduction of the dark bases; in *interposita* the black lines with white edges are more obvious on a paler ground. The white bars on fore and hind wings more restricted distally, due to the extension of the dark wavy lines proximad. The submarginal dark mark of fore wing more distinct and on the hind wing the ocellus is larger and very conspicuous.

RANGE. Uganda, mainly central and east; less plentiful in western forests. A very worn specimen which is rather intermediate between the nominate subspecies and *interposita* was captured at Lunzuwa Falls, Mbala, Zambia on 8.iv.1969 by Mr F. Scofield (teste M. N. Mitchell, pers. com. 1973).

Palla violinitens (Crowley)

Palla violinitens violinitens (Crowley)

(Pl. 4, figs 26, 27; Text-fig. 6; Map 2)

Philognoma violinitens Crowley, 1890 : 554.
Palla violinitens (Crowley) Staudinger, 1892 : 266.

MALE. Fore wing length 35 mm; shape as in other species of *Palla*. *Upperside.* Fore wing base and distal portion black, crossed by a conspicuous white bar, narrow at costa, 3 mm and widening slightly to the hind margin, strongly edged with blue on proximal side, slightly on outer in *1a–1b*. No other markings. Hind wing brownish at base, this colour extending into the inner fold, at the anal end of which is a whitish mark. Border blacker, separated from the base by a bluish white band sharply defined on inner edge, but merging into rufous orange below cell, which colour extends to the hind margin and along the tail, with a separate orange spot in the black border above the tail. Tail at end of vein 4 orange and pale tipped, 6 mm long. *Underside.* Fore wing base deep chocolate-brown; cell crossed by five black, white-edged, lines. White bar strong and narrow as above, defined by black on inner edge, flanked distally by fine dark lines on a greyish ground, so that the distal part of the wing appears darker than in other species. Hind wing base deep chocolate-brown, white bar narrow, 3 mm at costa, then of even width to above the anal angle, outwardly flanked by the dark wavy lines on a greyish ground. Border of wing with rufescent spots, distinct above and below the tail; ocellus with black spot on an olive ground, conspicuous, shaded with black proximally.

FEMALE. Larger than the male, fore wing length 45 mm, apex more rounded. *Upperside.* Fore wing basal area blackish brown, white band well defined, the distal edge with fine dark lines and so merging into the dark brownish black apex and outer border. The white band at the costa 7 mm wide, gradually expanding to 15 mm on the hind border; the dark border with somewhat angular white spots, that in space 4 small and set in. Hind wing basal area blackish brown extending to inner fold well above anal angle, white band very broad, 15 mm at costa to vein 4, then tapering to inner fold above the hind angle. Border of wing brownish black, merging into the white band by fine dark wavy lines; a row of conspicuous white lunules in the submarginal zone bordered distally with rufous above and below the tail; the ocellus on hind margin conspicuously white-edged proximally, with large central black spot; mark on anal angle paler, carrying two white dots. Tail at vein 4 rufous with a dark edge, tip pale, 10 mm long, but robust with rounded tip. *Underside.* Basal areas of both wings chocolate-brown, with black lines in the cells; outer edge with blackish line defining the broad white band proximally, and distally set off by fine black wavy lines of increasing density toward the darker border and in the hind wing with a pale ray along 4; the submargin with white lunules edged rufous distally, forming ocelli above and below the tail, that on the hind margin conspicuous with black spot on an olive ground, accentuated proximally by a black line, that on anal angle olive, with two white dots.

RANGE. Ghana to the Central African Republic and Angola, where it intergrades with the next aggregate.

Cline ***coniger*** (Butler)

(Pl. 4, figs 28–32; Pl. 5, fig. 33)

Charaxes coniger Butler, 1896 : 403.
Charaxes coniger Butler; Gabriel, 1927 : 34.

Usually referred to as merely a form, the name *coniger* Butler is here considered to be applicable to the large aggregate of the species found east of Cameroun. It will be noted that the type male came from Old Calabar and the associated female from 'Congo'.

MALE. Very similar to nominate race in size and coloration. *Upperside.* Forewing differing only in the greater width of the white bar with less strong blue on its proximal side. Hind wing, band also wider in its white upper portion, but the orange portion is more restricted. There is little difference on the underside except a corresponding difference in the width of the white band as noted on the upperside.

FEMALE. In this sex there is a corresponding difference in the width of the bars on the upper and under surfaces to that noted in the males. Whereas in the nominate race the submarginal row of pale spots on upperside of both wings is white, in *coniger* these spots are white or orange.

RANGE. Cameroun, Central African Republic, Congo (Brazzaville) and Zaire.

Palla violinitens bwamba subsp. n.

(Pl. 5, figs 35–37; Map 2)

MALE. Forewing length average 36 mm; shape similar to others of the group except that the hind angle of the forewing is slightly less prominent in 1*b* so that the angle is more rectangular. *Upperside.* Forewing, base and distal portion black, base slightly browner, white bar broader than in nominate race, 6 mm at costa expanding in a slight curve to the hind angle where the bar is 8 mm wide, the inner border more extended proximad and shaded with bluish grey, but reduced at the costa where there is a black line at end of cell. Hind wing, basal area and inner fold brownish black to anal angle where there is a small pale spot at inner margin. Outer border of wing blacker, extending from upper angle to above the tail. White band wider than in nominate race, 10 mm at costa, with a narrow white central line extending to base of vein 4 flanked proximally with greyish blue, less strongly blue distally, the white area ending rather at vein 3, giving way to the rufous-orange which extends to the hind margin and the tail; the ocellus in space 3 conspicuous, that above the tail less so, but the white dots at anal angle distinct though small. The main character is thus the width and extent of the white bar on the hind wing. *Underside.* Very similar to that of the nominate race but fore wing white bar much broader throughout, the hind wing bar also wider.

FEMALE. Larger than the male, fore wing length 45 mm, shape as in nominate race. *Upperside.* Fore wing, basal dark area as in nominate subspecies, but distal dark border stronger, the arrow-shaped submarginal spots rufous-orange except that at the costa which is white to buffy. Hind wing, white band more defined distally, the outer border dark. The submarginal spots larger and rufous-orange; the ocellus conspicuous. Tail robust, rufous in colour but pale tipped, 10 mm long. *Underside.* Fore wing, very similar to that of the nominate race but the distal portion more tinged with buffy, the fine wavy dark lines commencing more abruptly. The submarginal spots buffy though rather obscured. Hind wing, white band more defined distally by the dark wavy lines commencing more abruptly on the buff-tinged ground. Submarginal spots in the form of ocelli more rufous but less edged with white, but large ocellus at hind margin and anal angle well marked.

Holotype ♂, UGANDA: West Bwamba Valley, v. 1954 (*van Someren*) (BMNH).

Paratypes. UGANDA: Bwamba Valley, vii. 1942 (*van Someren*), 1 ♀ (allotype); Bwamba Valley, 1 ♂ (BMNH).

RANGE. Uganda, Ruwenzori, Bwamba Valley. A transitional form occurs in the Epulu area of Zaire (Pl. 5, fig. 34).

Palla publius Staudinger

Palla publius publius Staudinger

(Pl. 5, figs 38, 39, Text-fig. 5; Map 2)

Palla publius Staudinger, 1892 : 267.

Nearest in general facies to *Palla ussheri* (Butler), but exhibiting constant differences; the females of the two species being totally different.

MALE. Fore wing length 37–38 mm. Shape as in other species of *Palla*. *Upperside.* Fore wing, pattern very similar to that of *P. ussheri*, the white band slightly wider and slightly more curved on distal border. Hind wing, pattern also very similar but white portion of the band more extended, reaching vein 6, joining the rufous-orange rather abruptly and expanding rapidly at an angle and extending to the hind margin, including the whole of the tail. *Underside.* Fore wing, basal area and distal portion of wing darker than in other species, the fine dark lines on the latter, on a more brownish base, the margin of the wing darker. The same remarks apply to the hind wing.

FEMALE. Unlike other species, the female of *publius* resembles somewhat a larger paler edition of the male, having in general a similar pattern above. Fore wing length 45 mm. *Upperside.* Fore wing with an ochreous spot in the subapex in 5 and more obscured spots at the costa. *Underside.* Fore wing, paler than in the male, especially on the outer border where the fine wavy lines are on a brownish grey ground; in addition, there are dark rays on the distal side of the white band, at veins 1*a*–4, and dark lines on the submargin in the curve of the wing. The white bar very similar to that of upperside. Hind wing, white band very distinct, widest at the costa and tapering to above the anal angle; the ground colour of the dark wavy lines is buffy, but with dark patches in 4–5 and costa to 5. The marginal rufous ocelli, edged proximally in white, distinct, especially that in space 3 on the hind margin, showing up clearly on a clayish olive ground, proximally accentuated by a dark line.

RANGE. Ivory Coast, Ghana, Sierra Leone to eastern Nigeria.

Form *rectifascia* Weymer

Palla rectifascia Weymer, 1892 : 91.

This form, in both sexes, only differs from the nominate race, in having on the upperside a straighter fore wing bar, but the white area of the hind wing bar extends further into the orange on the proximal side, reaching vein 5. However, in the female the white bar of the fore wing is broader throughout, the submargin with a row of tawny spots, that in the subapex, whitish. On the hind wing the white upper part of the band is broader and extends further on the proximal side, almost reaching the inner fold where it merges with the orange; the submarginal spots obscure at upper half, but more distinct towards the hind border where the black ocellus is prominent. Underside, very similar to that in the nominate race but dark patches on fore wing stronger, on a paler ground. Hind wing ground colour less buffy but the admarginal ocelli well marked.

Form *moderata* Gaede

(Pl. 6, figs 49, 50)

Palla moderata Gaede, 1916 : 71.

The type of *P. moderata* Gaede cannot be located, and the description was not accompanied by a figure. A translation of the description is as follows.

> Closely related to *P. ussheri* Butler. The white band of the fore wing is slightly narrower; inwards, it has a slight bluish margin. The white band of the hind wing extends from the anterior margin to R_7 and then it becomes brownish. This brown part of the band is considerably narrower than in all *Palla* spp. and does not become broader towards the inner angle, but maintains an even width from the outer margin. The band is separated on the inner angle from the reddish yellow spot that extends from the inner margin to R_7 on the margin. In other species this spot is united to the band. An isolated spot is present in areas 4 and 5, the former exhibiting a white centre. The spot in area 4 in *ussheri* is nearly always united with the band, only in rare cases is it separated. The lower surface of the hind wing is identical with that of *ussheri*. This means that the differences between the two species is not very great, and it is not unlikely that some day transitional specimens will be found. However, it is also impossible to differentiate *publius* Stgr. and *ussheri*, by comparison of the upper surface while the lower surface differs slightly. In spite of that, the remarkable difference of the females confirm that they are separate species.
>
> The female of *moderata* is unknown.
>
> Type male, Dengdeng, N. Kamerun. 3/4/14. Coll. Dr. Milbraed. In addition, one male from Sierra Leone, in collection Staudinger.

It will be noted that these two specimens assigned to *moderata* come from widely separated areas. A third specimen placed under *moderata* in the Rothschild collection (BMNH) has been sent to me by Mr Howarth. It was taken at Kapulumbo, Kasai, western Congo, also far distant from Cameroun. This specimen closely resembles *P. publius* on the upper side, more so than *ussheri*, and suggests that *moderata* Gaede is not a species but a variation of *publius*, occurring here and there within the range of that species.

This specimen does not quite agree with the description of the type in so far as the orange band on the hind wing upperside is concerned, for it widens considerably in its lower portion above the anal angle.

Palla publius centralis **subsp. n.**

(Pl. 5, fig. 40; Pl. 6, figs 41–45; Map 2)

MALE. Similar in size and shape to the nominate race, but differing in the following characters. *Upperside.* Fore wing, bar is narrower in the region of the costa and the cell end, being 3 mm or even less, but gradually expanding towards, but contracting slightly, at the hind margin, particularly on the outer edge so that there is not a large overlap of the fore wing bar over that of the hind wing. The inner border is less sharply defined due to some greyish blue scaling, and there is often a whitish mark in the cell end. Hind wing, the white area of the bar is widest at the costa, 5 mm decreasing to 2 mm where it encroaches within the commencement of the orange area which expands rapidly to reach the tail on the distal side and the anal angle on the proximal side, the inner side being almost straight. The ocellus on the hind margin is very distinct as are also the two white dots at the anal angle. The tail, though robust, is pointed with rounded tip. *Underside.* Fore wing, very similar to that of the nominate, the white lines crossing the cell are distinct though the basal area is not so dark. The white bar is similar to that of upperside. The fine lines in the postdiscal zone are more distinct on a less dark border. Hind wing, the white bar is narrower, especially at the costal end, and the bar is of almost even width and more curved; otherwise, the pattern follows that of the nominate race.

FEMALE. Here also, it is male-like. Length of fore wing 45 mm. *Upperside.* Differing from the female of the nominate race in having a narrower bar throughout. Forewing, postdiscal row of spots obscured or absent. Hind wing, the white area at the costa is narrower and less extended, but the orange area expands rapidly as a triangle to reach the hind margin including the tail and the anal angle; the ocellus is very distinct. *Underside.* This exhibits similar differences to those noted in the male, but on the hind wing the submarginal ocelli above the tail are not so distinct.

Holotype ♂, CAMEROUN: Johann-Albrechts Hohe, Station Kamerun, 1896 (*L. Conradt*) (BMNH).

Paratypes. CAMEROUN: no further data, 1 ♀ (allotype); Bitye, 2000 ft, Ja River (*G. L. Bates*), 1 ♂; Mamfe, xi. 1956 (*T. H. E. Jackson*), 1 ♂; Bitje, Ja River, 2000 ft, dry season (*G. L. Bates*), 1 ♀. ZAIRE: no further data, 1 ♂. (All BMNH.)

RANGE. Cameroun, Central African Republic, Zaire.

Palla publius kigoma **subsp. n.**

(Pl. 6, figs 46–48; Map 2)

MALE. Differs from both the nominate race and *p. centralis* by the greater, more even width of the fore wing bar, which is almost parallel sided, especially on the undersurface. The white area of the bar on the hind wing is also wider as is also the orange portion of this band. On the underside, the pattern is strong.

Holotype ♂, TANZANIA: Kigoma, Kabogo, 28.xi.1961 (*Japanese Primate Expedition*) (BMNH).

Paratype. TANZANIA: holotype data (Nat. Mus. Nairobi, Kenya), 1 ♂.

SYSTEMATIC LIST

Palla decius (Cramer)

Palla decius decius (Cramer, 1777). Type-locality: Coast of Guinea.

f. *sagittarius* Rousseau-Decelle, 1934. Type-locality: Zaire, Kasai district.
Range: Guinea, Sierra Leone, Congo (Brazzaville), N. Angola.

Palla ussheri (Butler)

Palla ussheri ussheri (Butler, 1870). Type-locality: Gold Coast [Ghana].
f. *ferruginea* Schultze, 1914. Type-locality: Cameroun.
Range: Sierra Leone to W. Nigeria, west of Cross River.
♀ f. *dobelli* Hall, 1919. Type-locality: Cameroun, Bitje, Ja River.
Range: Cameroun, Central African Republic, Congo (Brazzaville).
ussheri interposita Joicey & Talbot, 1925. Type-locality: Uganda, Mabira Forest.
Range: Uganda, from west to east but mainly in central forests; Zambia.

Palla violinitens (Crowley)

Palla violinitens violinitens (Crowley, 1890). Type-locality: [Ghana] Accra.
Range: Ghana to Central African Republic.
violinitens cline *coniger* (Butler, 1896). Type-locality: Old Calabar (♂), Zaire (♀).
Range: Cameroun, Central African Republic, Congo (Brazzaville), Kasai and central Zaire.
violinitens bwamba subsp. n. Type-locality: Uganda, Bwamba Valley.
Range: Uganda, west of Ruwenzori, Bwamba Valley with variation in E. Zaire in the Epulu area.

Palla publius Staudinger

Palla publius publius Staudinger, 1892. Type-locality: Sierra Leone.
f. *rectifascia* Weymer, 1892. Type-locality: Ghana.
Range: Ivory Coast, Ghana, Sierra Leone to E. Nigeria.
f. *moderata* Gaede, 1915. Type-locality: Cameroun.
Range: Sierra Leone, Cameroun, Zaire.
publius centralis subsp. n. Type-locality: Cameroun, Bitje.
Range: Cameroun, Central African Republic and Zaire.
publius kigoma subsp. n. Type-locality: Tanzania, Kigoma.
Range: Tanzania. Only known from the Kigoma district north-east of Lake Tanganyika.

THE *EUXANTHE* COMPLEX

The genus *Euxanthe* was created by Hübner in 1816 (1819), without a generic description. The type-species was cited as *Papilio eurinome* Cramer (1775–6).

The genus was subdivided by Aurivillius (1898 : 220) when he created the subgenus *Hypomelaena* (type-species *Godartia trajanus* Ward, 1871). The distinguishing characters are that in *Euxanthe* the fore wing cell is obtusely rounded and elongated at its distal end, the hind wing cell is open, while in *Hypomelaena* the fore wing cell is almost triangular and ends abruptly and the hind wing cell is closed.

A great deal of reliance is placed on wing venation for distinguishing genera, and rightly so, but, in my opinion, the early stages are also of great importance. Wing shape is also of significance in 'grouping' and, although the shape of *Charaxes* and *Euxanthe* differ considerably, evidence is afforded by the ova, larvae and pupae which show that *Euxanthe* is allied to *Charaxes*, but forms a compact group. I therefore support the proposal of Rydon (1971 : 230) that a sub-family Euxanthinae be erected for the group. For comparative figures and descriptions of the early stages vide van Someren & van Someren (1926 : 354) and Rydon (1971). (See Text-figs 7–9.)

Euxanthe* (*Euxanthe*) *eurinome (Cramer)

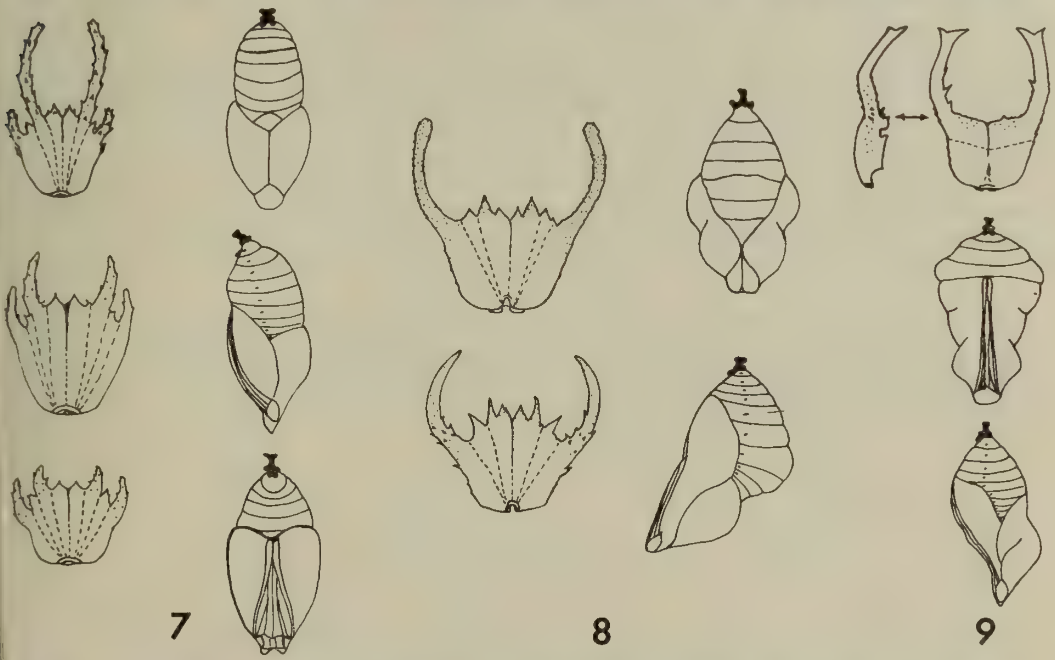
Euxanthe* (*Euxanthe*) *eurinome eurinome (Cramer)

(Pl. 7, figs 51–54; Map 3)

Papilio Eques Achivus eurinome Cramer, 1775 : 109.
Papilio Festivus eurinome Cramer; Fabricius, 1793.
Euxanthe eurinome (Cramer) Hübner, 1816 : 39.
Euxanthe eurinome (Cramer); Kirby, 1871 : 228

For full references vide Stichel, 1939.

MALE. Fore wing length 42–44 m. Shape, wings rounded, costa and outer margin of wing curved, apex rounded, or very slightly pointed. *Upperside.* Fore wing, ground colour black



FIGS 7–9. Early stages of (7) *Charaxes*, (8) *Euxanthe*, (9) *Palla*. (R. Smiles del. after van Someren.)

slightly browner at base and costa. Pattern consisting of four rows of spots, all slightly bluish green, the intensity of the colour depending on the direction of the light upon them; row 1, mark towards end of cell small and elongate with a small dot at proximal end, an elongate ovoid mark in space 2, followed by two narrow elongate marks in space 1b and a smaller mark in 1a placed more proximad; row 2, elongate marks in spaces 3–6, that in 5 a narrow streak; row 3, with four smaller elongate spots; submarginal spots smaller and whitish, rounded, from subapex to space 3, the mark in 2 more angular and set in, two spots in 1b. Hind wing, ground colour black, the basal area with a large bluish green patch occupying the cell and space below and bases of 5–6, the marks in the latter separated by black, so that the outer border is irregular; postdiscal line with conspicuous row of ovoid bluish green spots, largest at costal end, smaller in 4–5, then larger in 2–3; the spots on the inner fold small; the marginal row of spots more rounded, the spots decreasing in size from upper angle, double spots at anal angle; edge with small white marks opposite each spot. *Underside.* Fore wing, ground colour dull black, more brownish along the costa to apex, and the outer margin to hind angle. Pattern of spots as upperside but paler, but cell and base of costa with whitish spots; the submarginal spots in spaces 1b and 2 more angled and larger than above. Hind wing, ground colour dull black shading to brownish at base of costa and upper part of inner fold; basal light area larger than above, the whitish extending into the inner fold from 1a–1c; the postdiscal row of pale spots larger and more silvery white, and in addition a series of small white spots in the interspaces.

FEMALE. Fore wing length 45–51 mm; shape less rounded than in the male, the outer border less outwardly curved. *Upperside.* Fore wing, pattern of pale spots arranged as in the male, but all spots larger and white, with just the slightest tinge of green. The mark in the cell large and elongate, sometimes filling the whole of the cell, but usually with an irregular upper edge; the spot in space 2 large, and extending basad; the mark in 3 in the mid row large, rounded or ovoid, often extended basad; the submarginal spots larger than in the male. Hind wing, ground colour black, browner along the costa and along the distal border of the large white area in the disc of the wing which extends into the inner border to above the hind angle, the outer edge slightly dyslegnic, represented at the costa by an oval free spot, white in colour. The postdiscal row of more rounded spots, white and distinct and, unlike the male, there is a double row of white spots between the postdiscal row and the small white spots on the admargin. *Underside.* Fore wing ground colour, dull black, the pattern of white spots more or less as upperside, the cell mark often with a black spot in subbase. Hind wing ground colour dull brownish black, the border slightly blacker; the basal white area more rayed by blacker veins, but not extending so far down on the inner fold; the postdiscal row of white spots larger and more rounded than upperside, the intermediate submarginal white spots as upperside but larger and extending from costa to hind margin at the angle; the submarginal white spots larger and more elongate; the edge with a narrow white fringe opposite these spots.

RANGE. The nominate race extends from Sierra Leone, Ivory Coast and Ghana to Nigeria; it also occurs on Fernando Po. There is reason to believe that nominate *eurinome* intergrades with the more eastern race *ansellica* in the region of Cameroun, the Central African Republic and Zaire.

♀ form ***johnsoni*** Howarth

Euxanthe eurinome Cramer ♀ form *johnsoni* Howarth, 1969 : 154, pl. 2 fig. 5.

This extreme female form is distinguished by the enlargement and coalescing of all the white markings basad of the submarginal spots into one large area on the upper and underside of the fore wings.

Euxanthe (Euxanthe) eurinome ansellica (Butler)

(Pl. 7, figs 55–58; Pl. 8, fig. 59–63; Maps 1, 3)

Godartia ansellica Butler, 1870 : 525.
Euxanthe eurinome ansellica var. *radiata* van Someren & Rogers, 1927 : 65.

MALE. Fore wing length 41–45 mm. Shape as in the nominate race. *Upperside.* Fore wing, pattern and colour of bluish green spots very similar, the spot in space 3 set rather more distad, those in 1b of more equal length; the spot in the cell larger and more irregular on upper border; the general ground colour similar to that of the nominate race. Hind wing ground colour as in *eurinome eurinome*, the general pattern very similar, the second spot in space 5 of the discal row often missing. Basal patch often broken up by black and the whole patch is more limited on the proximal side; the spots in the discal line and admargin as in the nominate race. *Underside.* Forewing, ground colour slightly more brownish than in nominate race; the pattern also very similar, but submarginal row of spots on the hind wing stronger and more developed.

FEMALE. Larger than the male, fore wing length 54–55 mm; shape slightly more convex on outer border. *Upperside.* Fore wing; this sex exhibits a marked departure from the pattern of the nominate race, the pale markings on the fore wing are smaller, thus the spots are more scattered, and all are pale bluish white. Hind wing, the basal patch is less solid and is separated into pale bluish white rays by the black-scaled veins; however, the submarginal and admarginal bluish white spots are more developed. *Underside.* Ground colour browner than in nominate race, the pale spotting, though larger than on upperside and pale bluish in colour, is similarly broken up. The colour of the abdomen is darker dorsally.

RANGE. Northern Angola, S. Cameroun, Central African Republic, central and southern Zaire including Katanga; extending eastwards to west and central Uganda.

Specimens from eastern Zaire have received the name *f. burgeoni* Le Cerf, 1923, the type-locality being Kindu. This form was placed under *eurinome eurinome* by Peters (1952), which is incorrect (Pl. 8, fig. 64).

Euxanthe (Euxanthe) eurinome celadon Le Cerf

(Pl. 8, fig. 65; Map 3)

Euxanthe eurinome celadon Le Cerf, 1923 : 363.

There has been some confusion in the past as to the exact locality of the race *celadon* Le Cerf. Specimens from the Mt Elgon area having been placed under it because of their small size, compared with *ansellica.* In order to clarify the position, I wrote to Dr Viette of the Muséum National d'Histoire Naturelle, Paris, and asked him to kindly check on the locality cited on the label attached to the type-specimen. This label gives the locality as Gabun! Bryk (1939) gives the type locality as 'Congo' without exact location. Since the race *ansellica* Butler occurs to the immediate east of Gabun, extending east through the Congo to Uganda, it appears obvious that the Elgon insect cannot be placed to *celadon.*

Unfortunately, I have no topotypical specimen of *celedon* on which to base a personal opinion as to its validity; I accordingly quote the original description given by Le Cerf.

Euxanthe eurinome Cr. s. sp. **celadon** nova.

♂.–Aire basale verte des ailes inférieures fortement réduite par l'envahissement du fond noir qui couvre largement les bords de la cellule et les nervures; la tache entre 1^b et la cellule n'atteint pas la base de la nervure 2; celle de l'intervalle 3 manque ou est rudimentaire; celles des intervalles 6 et 7 sont en majeure partie oblitérées par un semis noir.

♀. – Tous les dessins d'un bleu verdâtre clair au lieu de blanc pur; bande terminale noirâtre des ailes inférieures large, remplissant la base des nervures 2–3; bords de la cellule et nervures écaillés de noir; entre les nervures 1^b et 2, un large trait noir court sur le pli jusqu'a 1 centimètre de la base de l'aile.

Types : ♂ (H.T.), Gabon, ex M. Lebaudy, 1909. – 1 ♂, 1 ♀, Tchibanga, Gabon, 1908, ex G. Le Testu. – 1 ♂, 1 ♀, Landana, Congo portugais, 1882; 1 ♀, Thoumby, Congo belge, 1883, ex L. Petit < coll. E. Boullet, Coll. Muséum National de Paris.

RANGE. Gabon.

***Euxanthe* (*Euxanthe*) *eurinome elgonae* subsp. n.**

(Pl. 9, figs 66–73; Maps 1, 3)

MALE. Fore wing length 40–42 mm, thus smaller than the nominate race and *ansellica* of the Congo and central Uganda. The chief characters of the race *elgonae* are its considerably smaller size compared with *ansellica*, but the pattern of the male on the upper side is more like that of nominate *eurinome*, although the underside ground colour is quite different. The female of *elgonae* is more like that of the nominate race regarding the solidity of the hind wing patch, which is white, but the fore wing spots are blue as in *ansellica*. In detail, the differences compared with *ansellica* are as follows. *Upperside*. Fore wing, cell mark is divided into two, one at subbase and a double spot beyond; though somewhat variable, the postdiscal and marginal spots are more uniform in size; hind wing, the basal green patch is smaller and more consolidated distally, less broken up by dark rays. The postdiscal row of spots more rounded and uniform in size; the submarginal row of small spots better developed. *Underside*. Fore wing ground colour, brownish along the costa and the outer border. Hind wing, more brownish along the costa.

FEMALE. Fore wing length 45–50 mm. *Upperside*. Fore wing, pattern of pale spots bluish to whitish. The hind wing patch is white and more consolidated, its outer border strongly indented in spaces 2–3. *Underside*. Hind wing, ground colour very similar to that of *ansellica*, but pattern reflecting the differences noted on the upperside.

Holotype ♂, KENYA: east Elgon area, Trans. Nzoia district (BMNH).

Paratypes. KENYA: holotype data, 1 ♀ (allotype) (BMNH), 1 ♂, 1 ♀; Mara District, Gori River forest, 2 ♂. UGANDA: W. Madi, Metu forest, 1 ♂.

RANGE. North-west Kenya to the east and south-east of Mt Elgon, extending north into the Suk country. Similar specimens have been taken in Uganda in the West Madi district at Metu. Its distribution coincides with that of its chief food plant, Mbambakofi, *Afzelia africana* Smith (Caesalpinaceae) on which it has been bred.

Euxanthe* (*Euxanthe*) *eurinome birbirica Ungemach

(Map 3)

Euxanthe eurinome birbirica Ungemach, 1932 : 52.

As I have no specimen of this subspecies I quote below the original description.

82. **Euxanthe eurinome *birbirica*** s.-sp. nova.

La race abyssine de ce bel insecte se rapproche de la race congolaise *ansellica* Btlr. par la réduction de l'aire basale claire de l'aile postérieure et par l'irrégularité de la série de taches submarginales de l'aile antérieure. Mais les taches submarginales de l'aile post. sont de la taille de celle d'*eurinome* Cr. et presque rondes. Toutes les taches claires de l'aile ant. sont beaucoup plus réduites que dans les deux races connues; en particulier, la grande tache cellulaire se divise en deux petites taches, une triangulaire à la base, un autre allongée et bilobée au delà du milieu. La tache de l'intervalle 1^a est absente ou minuscule.

Chez la femelle, les taches de l'aile ant. sont blanc bleuté, la base de l'aile post. blanc pur et les taches discales vert très pâle. Mais surtout, le fond de l'aile post. est brun rouge au lieu de noir, presque de la même teinte que le dessous du ♂. L'extrémité de l'intervalle 1^b est même brun clair. Les arceaux noirs de la bordure envoient un prolongement noir jusqu'aux taches discales. Il n'y a que deux discales dans l'intervalle 1^c, dans les deux sex. Envergure de la ♀, 97 mm. – Type dans ma collection. (Youbdo, 13 nov. 26).

J'ai capturé de cette belle espèce trois ♂♂ et une ♀ à Youbdo; tous, sauf un ♂, sur un arbre blessé dont la sève en fermentation attirait de nombreux insectes et surtout une grande quantité de *Charaxes*.

Euxanthe* (*Euxanthe*) *crossleyi (Ward)

Euxanthe* (*Euxanthe*) *crossleyi crossleyi (Ward)

(Pl. 10, figs 74–80; Map 3)

Godartia crossleyi Ward, 1871 : 36.
Euxanthe crossleyi (Ward) Kirby, 1877 : 740.
Euxanthe crossleyi f. *niepelti* Bryk, 1939 : 632.

MALE. Fore wing length 45 mm; shape, costa curved, apex only slightly pointed, outer margin outwardly curved. Hind wing rounded, no anal projection. *Upperside.* Fore wing ground colour black; pale markings in four rows, all pale greenish cream, cell almost entirely filled by a large black mark but not reaching the base, sometimes with a black dot in mid-subcostal area, followed by a large rather triangular mark in space 2, followed by narrow elongate marks in 1b–1a; long narrow marks in subbases of 4–6, mark in 3 at a slight angle to those above and set in a little; postdiscal row of spots smaller, in a row from 4–7, linear; submargin with full series of more rounded spots from 1b to subapex in 7, the spot in 2 largest and set in a little, mark in 1b double; base of fore wing costa with a pale line, sometimes tinged with rufous basally. Hind wing, ground colour black, disc of wing filled by a large greenish cream patch separated up into rays by black veins, the subcostal mark in 7 very long and extending distad to fuse with the postdiscal row of large ovoid pale spots, with marks below also fusing to a lesser degree; represented on the inner fold by a club-shaped whitish mark which is freckled with black scales. Submarginal line with a row of double half-moon spots divided by black; admargin with pale linear marks in interspaces. *Underside.* Fore wing ground colour black, slightly paler along the costa, apex and outer border. Pattern of pale spots arranged as upperside but paler. Hind wing, base of costa and 6 with a rufous patch with two white dots; rest of the wing taken up by the paler greenish cream enlarged patch as on upperside, divided up by black veins, the inner fold greenish cream divided longitudinally by black veins, not all black as upperside.

FEMALE. Larger than the male, fore wing length 58–60 mm. Shape, outer margin less outwardly curved than in the male. *Upperside.* Fore wing, basal part of wing taken up almost entirely by the pattern of creamy marks which are only slightly tinged greenish in the distal part of the wing. Black triangular area at base of cell, extending into bases of spaces 1b–1a. Cell itself entirely creamy; the discal zone of the wing with an enlarged creamy area divided up by black veins; the postdiscal series of spots from 4 to subcosta in 7, much larger

than in the male, and creamy in colour; the submarginal spots arranged as in the male but larger and more angular. Base of costa with a creamy line. Hind wing, extreme base black, bulk of wing filled with the creamy rayed pattern, which is more extensive than in the male, the ends of the rays more fused with the postdiscal rounded creamy spots. The inner fold is creamy, divided by black veins; the submarginal and admarginal creamy spots arranged as in the male but larger. *Underside.* Fore wing, ground colour towards the apex and outer border greyish, darkening toward the hind angle; the black patch at lower base of cell and base of 1b strong. The bulk of the wing filled by an enlarged pattern of creamy marks arranged as on upperside; the postdiscal spots more or less fusing with the discal spots. Hind wing, ground colour more greyish, the whole area taken up by the extended pattern of creamy rays which fill it from the base to the submarginal zone, where the row of pale spots is strongly represented as are the admarginal triangular spots. The extreme base of the wing is shaded with rufous.

RANGE. The nominate race occurs in the Cameroun, Zaire, the Central African Republic and Mwinilunga, Zambia.

Euxanthe* (*Euxanthe*) *crossleyi magnifica Rebel

(Pl. 12, figs 90–92; Maps 1, 3)

Euxanthe crossleyi magnifica Rebel, 1914 : 252.
Euxanthe crossleyi intermedia Joicey & Talbot, 1921 : 75.

MALE. Fore wing length 40–42 mm; shape as in the nominate race. *Upperside.* Fore wing differs from the more western *crossleyi crossleyi* by its paler coloured pattern, the greenish tinge to the creamy marks being mostly on the distal half of the wing. The general pattern very similar to that in the nominate race but more extended; ground colour black. Base of fore wing costa with a marked creamy stripe up to mid point; cell filled entirely with creamy yellow except for a streak at lower base adjoining the black spot at the base of the wing which fills the bases of spaces 1b–3, as in the nominate race, but more extended, that in 3 fusing with the spot in the discal row; the marks in the discal row larger and more extended; the four postdiscal spots larger as also are the submarginal spots, of which that in 2 is slightly set in and larger, that in 1b double. Hind wing, pattern as in the nominate race but creamy, the rays of the discal area more even and elongate, the fusion with the spots in the postdiscal row more complete; the spots in the submarginal line larger and creamy, as also are the admarginal ones. The inner fold of the wing creamy buff, divided by black veins. *Underside.* Fore wing ground colour shading to greyish on the apex and outer border; the heavy black mark at the base strong. The general pattern follows that of upperside but is paler in colour. The hind wing pattern is essentially that of upperside, divided by black veins. The ground colour on the border is more greyish; the submarginal and admarginal spots as upperside but paler.

FEMALE. Larger than the male, but with similar pattern and all spots paler.

RANGE. Eastern Zaire, mainly in the Irumu-Beni-Ituri areas. It is of interest to note that this pale race occurs between the darker western and the strongly marked race of Uganda.

Euxanthe* (*Euxanthe*) *crossleyi ansorgei Rothschild & Jordan.

(Pl. 11, figs 81–86; Pl. 12, figs 87–93; Maps 1, 3)

Euxanthe crossleyi ansorgei Rothschild & Jordan, 1903 : 333.
Euxanthe crossleyi ansorgei f. *babbingtoni* Stoneham, 1943 : 46.

Hitherto, all representatives of the species *crossleyi* from Uganda and Kenya have been considered to be a homogeneous entity. After intensive study they may be divided into three groups.

Group A. The type of *ansorgei* came from the Nandi forest. Both sexes are characterised by the smallness of the spots in the fore wing and the restricted hind wing patch, and the large postdiscal spots, but small admarginal ones. The streak on the hind margin in space 1a is short. Topotypical examples: Pl. 11, fig. 86; Pl. 12, fig. 88.

Group B. The aggregate from the low-lying humid swamp forests of Katera, on the western shores of Lake Victoria, in the Masaka district, differ by having a large spot in the fore wing cell, and larger marks in the discal line, but smaller spots in the upper postdiscal row. The streak on the inner margin in 1a is much longer. On the hind wing, the discal patch is larger, being extended distally, and also on the inner fold; the submarginal spots larger. These general differences apply equally to the females. Specimens from central Uganda, Mawakota area, come within this group (Pl. 11, figs 81–83). (See Map 1.)

Examples from the Kigoma district to the north-east of Lake Tanganyika in Tanzania, of which I have insufficient material, approach the Katera aggregate (B) but differ appreciably; the fore wing spots are strongly greenish (Pl. 11, fig. 84).

Group C. Moving further west to the forests of Kayonza in the Kigezi district of Uganda, we note that males differ from either of the above groups; the base of the fore wing costa is rufous, extending as a streak at the base of the cell; the mark within the cell is larger than in those in group A, and more broken up and irregular on the upper edge than in those in group B. The discal row of spots as in group B, thus larger than in group A; the postdiscal spots as in B but limited to three spots. The hind wing patch intermediate between that of A and B, but the postdiscal row of spots large as in A. The submarginal spots are small, but the admarginals are large and reach the margin. Females correspond in a like manner (Pl. 11, fig. 85; Pl. 12, fig. 87). (See Map 1.)

These aggregates therefore exhibit characters tending toward the two well marked races *magnifica* and *ansorgei*, yet are sufficiently distinct from either and between themselves, as almost to warrant recognition as subspecies.

Euxanthe* (*Euxanthe*) *crossleyi claudiae Rousseau-Decelle

(Map 3)

Euxanthe crossleyi claudiae Rousseau-Decelle, 1934 : 228.

No specimens available for a personal assessment.

Euxanthe* (*Euxanthe*) *wakefieldi (Ward)

(Pl. 13, figs 94–100, Text-fig. 1; Map 3)

Godartia wakefieldi Ward, 1873 : 152.
Euxanthe wakefieldi (Ward) Kirby, 1877 : 740.
Euxanthe wakefieldi f. *rubiginea* Le Cerf, 1923 : 363.

MALE. Fore wing length 40–43 mm. Shape, fore wing costa strongly curved, apex bluntly pointed, outer margin of wing outwardly curved. Hing wing rounded, margin slightly undulating. *Upperside.* Fore wing, ground colour black, very slightly brownish at base and along the costa. Pattern of greenish spots strong but somewhat restricted; a large ovoid spot toward the end of the cell and occasionally a spot at upper subbase; discal row of greenish spots of varying shape as follows: an ovoid subcostal spot followed by a small streak in space 5, a longer streak in 4, the marks in 3–2 much larger, the proximal ends extended towards the cell, the distal ends incised or oblique, the double mark in 1b projecting distally towards the hind angle, a small linear mark in 1a. All these marks are satin-green, but appear satin-white in oblique view. The postdiscal row of marks limited to three large ones in the subapex in 4–6 with an occasional small dot in subcosta; submarginal spots variable, spots in 2–3 always present, those in 5–6 smaller, often obscured, the mark in 1b usually absent. Hind wing, ground colour black, slightly brownish at base and along inner fold. Discal green-white patch, sometimes satin-white according to light, somewhat restricted, divided on distal border by black veins. Postdiscal row of rounded spots complete, decreasing in size from subcosta to the double spot in the hind angle; submarginal spots mainly on angle, but obscured beyond; admarginal spots small, limited in number or obscured. An occasional variant has all the spots very pale, with little or no greenish tinge, so that the pattern appears white. *Underside.* Fore wing, ground colour blackish in areas 1a–3, shading to dull rufescent brown on the costa, apex and outer border. The pattern of marks as upperside, paler, and slightly larger; the spot at the base of the cell strongly marked. Hind wing, ground colour rufescent brown, the pattern as on upperside but spots larger, the patch in the disc of the wing extended into the inner fold; an additional mark on the costa, and two white dots at its base. The postdiscal and submarginal spots more complete and distinct than on upperside and whiter in colour.

FEMALE. Larger than the male, fore wing length 50–52 mm. Shape of fore wing more elongate than that of male, the outer margin slightly incurved at 2–3. *Upperside.* Fore wing ground colour jet black; pattern of spots in the disc of the wing similar to that of the male, but all marks larger and pure white, occasionally with a slight bluish tinge to cell mark and subapical spots which are large in spaces 4–6, with an occasional dot in 7. Submarginal spots limited to 2–3. Hind wing, costal area and outer border jet black, the disc filled by a somewhat rounded white area which extends into the inner fold, the upper part of area clear-cut, the lower border more dyslegnic due to the intrusion of blackish scaling; the white spots in the discal and submarginal rows complete and clear, those on the admargin small but distinct. *Underside.* Fore wing, ground colour mostly dull blackish brown along the costa and apical region. Pattern as upperside but slightly enlarged; the cell with a basal white spot. Hind wing ground colour brownish, the large discal patch clear-cut, but divided by black veins; postdiscal and submarginal rows of white spots complete. The edge of the wing with slight white fringe between veins.

The chief food plant is Mbambakofi, *Afzelia cuanzensis* Welw. (Caesalpinaceae). For an account of the early stages vide van Someren (1935 : 172).

RANGE. Coastal forests of Kenya and Tanzania, including the islands of Pemba and Zanzibar, extending to Mozambique as far south as Delagoa Bay and inland as far as Mbala (formerly Abercorn), Zambia and has been seen by Mr F. Schofield in the lower Luangwa Valley (teste M. N. Mitchell, pers. comm. 1973).

Euxanthe (Euxanthe) madagascariensis (Lucas)

(Pl. 13, fig. 101; Pl. 14, fig. 102; Map 3)

Godartia madagascariensis Lucas, 1842 : 299.
Anthora amakosa Doubleday, *in* Westwood, Doubleday & Hewitson, 1850 : 283.
Euxanthe madagascariensis (Lucas) Kirby, 1871 : 228.

Most closely allied to the continental species *Euxanthe wakefieldi* (Ward) of eastern Africa, but pattern of light greenish spots more limited.

MALE. Fore wing length 40–42 mm; shape similar to that of other *Euxanthe* species but apex pointed. *Upperside.* Fore wing, ground colour black, pattern as follows: two rectangular greenish spots in distal half of cell, followed by a broad diagonal band of elongate marks in the discal line, extending from the subcosta towards, but not reaching, the hind angle, the spot in space 1b the smallest. The submarginal row of small greenish spots of diminishing size extends from the subcosta to 1b. Hind wing, ground colour black; pattern limited to a conspicuous greenish white area occupying the distal half of the cell and the bases of cellules above, the patch appearing white in oblique light. Postdiscal row of large greenish spots decreasing in size from subcosta to 3. *Underside.* Fore wing, ground colour brownish, darker in hinder portion. Pattern as upperside, but spots larger. Hind wing pattern much as upperside but with a few additional white spots at base and on the inner fold; postdiscal spots arranged as upperside but larger and extending towards the inner margin; submarginal spots complete, but admarginal spots limited to two or three in the mid-margin.

FEMALE. Larger than the male and slightly different in shape, the outer margin of the fore wing less curved outwardly. *Upperside.* Pattern more or less as in the male, but all spots white. The broad white discal area on the hind wing very large, extending from near the base to well beyond the middle and covering the bases of cellules 2–6. Postdiscal spots and those on submargin as in the male but all are white. A cinnamon-brown area at the anal angle. *Underside.* Fore wing base black, shading to chestnut on the outer border and apex, the brown colour extending along the costa. White markings as upperside, but enlarged; the spots on the submargin ringed in black, especially distally. Hind wing, ground colour on costa and border chestnut-brown; two white spots at base of costa; discal white patch as on upperside but outer margin more irregular; postdiscal white spots as above; an additional row of small white spots present in the submarginal line and larger spots on the admargin in the interspaces.

RANGE. Confined to the island of Madagascar.

Euxanthe* (*Hypomelaena*) *trajanus (Ward)

Euxanthe* (*Hypomelaena*) *trajanus trajanus (Ward)

(Pl. 14, figs 103, 104)

Godartia trajanus Ward, 1871 : 36.
Euxanthe trajanus (Ward) Kirby, 1877 : 740.
Euxanthe schatzi Staudinger, *in* Staudinger & Schatz 1885 : pl. 48.

MALE. Fore wing length 45–46 mm. Shape, costa curved, apex rounded, outer margin outwardly curved; hind wing rounded. Because of the rounded apex, the fore wing appears more elongate than in other species of *Euxanthe*. *Upperside.* Fore wing base, the cell and base of space 1b conspicously rufous-chestnut. Distal portion of wing black, with three rows of light marks, the discal row pale yellowish white, commencing with a large mark at end of cell, the distal end cut out to accommodate the oval mark at the base of 4, an angular mark fills the base of 3, followed by an elongate mark in 2, extending distad, a smaller triangular mark in 1b with a smaller elongate mark below; 1a with a long white streak extending from base to just beyond the mid-point. Postdiscal series of large white spots, the three upper ones ovoid and large, the three lower more rounded, sometimes double at the hind angle, the lower spot very small; the subapex has two or three white spots diminishing in size, but occasionally present in 4 as a mere dot. Hind wing, ground colour black, the disc of the wing with a somewhat restricted greyish white patch, clearly defined on its upper border, but dyslegnic on the outer, and more so on lower border toward the inner fold. The wing is otherwise immaculate except for a series of small white dots on the admargin. The upperside of the abdomen is black. *Underside.* Fore wing, ground colour, matt black, base rufous-chestnut as on upperside; pattern of spots similar to that of upperside but subapical spots absent. Hind wing, ground colour matt black with slight brownish tinge, immaculate except for a minute white dot on the costa and mid point.

FEMALE. *Upperside.* Fore wing, somewhat similar in pattern to that of male, but mark in cell reduced to one small spot at subcosta and a spot in the lower apical region connecting up with the larger discal spot in the white band, which is very similar to that of the male but the mark at base of 4 is absent; the postdiscal row of spots like that of the male but spots larger; subapical spots limited to two. Hind wing, pattern mostly taken up by the large white area which extends from the inner fold, bordered distally by the black border which is slightly brownish at the hind angle. Admarginal row of white spots most marked in the curve of the wing. *Underside.* Fore wing, ground colour as on upperside, but black less intense and inclining to brownish at apex and on outer border. Base, chestnut area as on upperside; the discal white band as on upperside, but mark in cell increased in size costad, with an additional white spot beyond. Hind margin of wing with a short white streak. Hind wing, white area as on upperside but rayed by black veins and black lines in interspaces which run out to the margin, the surrounding ground colour brownish with black rays. Submarginal and admarginal spots as on upperside.

RANGE. The nominate race is restricted to Cameroun and the countries bordering on the west of the Congo River.

Euxanthe (Hypomelaena) trajanus vansomereni Poulton

(Pl. 14 figs 105–107; Pl. 15, figs 108, 109)

Euxanthe trajanus vansomereni Poulton, *in* Eltringham, Poulton, Riley & Talbot, 1929 : 476.

MALE. Fore wing length 47–48 mm; shape, costa curved, apex blunt, outer margin outwardly curved; hind wing rounded. *Upperside.* Fore wing, general colour and pattern very similar to that of the nominate race from Cameroun, but rufous area of cell and basal area of space 2 more extended distad, reducing the width of the yellow bar at end of cell and the other component yellow marks slightly reduced; the postdiscal white spots slightly larger; the submarginal spots as in the nominate race. The pale streak along the hind margin slightly longer. Hind wing, bluish grey discal area more extended proximally and distally and also towards the hind border, thus reducing the width of the black border of the wing where the submarginal white, double spots are larger and more distinct. *Underside.* Fore wing, ground colour not so black, more brownish; the pattern as upperside. Hind wing, ground colour more brownish so that the black rays show up more distinctly. The white dot at costa absent.

FEMALE. Fore wing length 60 mm. Shape as in nominate race. *Upperside.* Fore wing, pattern exhibits the same characters as noted for the male, the chestnut area in the cell is more developed, but the white band reduced in width, especially in space 3; the pale streak along the hind margin is narrower and tapering at both ends. The postdiscal white spots are more elongate, those toward the border in 1b–3 smaller. Hind wing, discal patch creamy not white, more restricted on distal border which is straighter, not curved and does not extend so far down the inner fold; the black border is thus wider, and the two rows of white spots larger, especially those on the submargin. *Underside.* Fore wing, less black than in nominate race; between the white bars, more brownish. The basal chestnut more extended, but the discal white bar narrower; the postdiscal white spots more elongate. There is a double row of white spots in the apex. Hind wing, ground colour as in nominate race, black rays equally distinct and the distal border of the white patch straighter, as upperside; the two rows of white spots in the border larger and more developed, especially those on the admargin.

RANGE. Uganda, mostly in the central forests, extending east to the Mabira Forest. Specimens from Beni-Irumu, eastern Zaire, appear to be transitional, but the material available to me is poor (Pl. 14, fig. 105).

Euxanthe* (*Hypomelaena*) *trajanus gabonicus Le Cerf

(Pl. 15, figs 110, 111)

Euxanthe trajanus gabonicus Le Cerf, 1923 : 362.
Euxanthe trajanus gabonicus f. *depuncta* Le Cerf, 1923 : 362.

This subspecies is considered to be a synonym of nominate *trajanus* by the BMNH but I have insufficient material on which to base a personal opinion.

RANGE. Gabon, Ogowe River.

Euxanthe* (*Hypomelaena*) *trajanus antonius Rousseau-Decelle

(Pl. 15, fig. 112)

Euxanthe trajanus antonius Rousseau-Decelle, 1930 : 43.

Through the kindness of Major Grahame, I am able to give a figure of a paratype specimen, ex coll. Rousseau-Decelle. It will be noted that the fore wing pattern is nearest to that of examples from the eastern Congo at Beni-Irumu, the chief differences being the more limited extent of the chestnut area in the cell, and the greater width of the creamy mark beyond; in these respects, the Katanga insect resembles the nominate *trajanus*. The hind wing greyish patch is more rounded, less angled on the distal side.

RANGE. Southern Zaire (Katanga, Kafakumba).

Euxanthe* (*Hypomelaena*) *trajanus nigeriae subsp. n.

(Pl. 15, figs 113, 114; Pl. 16, figs 115, 116)

MALE. Fore wing length 43–44 mm; shape as in other races of *trajanus*. *Upperside*. Fore wing, the chestnut area in the cell extends slightly into space 1b; the creamy patch beyond in the cell end is separated from the chestnut by a black triangle, the rest of the creamy marks restricted in size; the whitish streak on the inner margin well developed; the white spots in the postdiscal line, bold; the subapical white spots, four in number, the lowest a dot. Hind wing, discal greyish area very restricted, rounded on outer border and merging with the inner fold; the black border is thus wide; the submarginal white dots small but distinct. For arrangement of pattern on underside vide Pl. 15, figs 113, 114.

FEMALE. Fore wing length 52 mm. *Upperside*. Fore wing, chestnut area in cell limited to basal half; costal white spot small, that at lower angle elongate. The discal white area more solid, the lower edge straighter; the white spots beyond, as in the male, the lower three comparatively large compared with those above. The white streak on the hind margin strongly developed. Hind wing, basal area large, white in colour with only a slight tinge of rufous at hind angle, outer border very rounded; black border of wing thus reduced, but white submarginal spots distinct in upper half; admarginal spots punctiform but distinct.

For underside vide Pl. 16, figs 115, 116.

RANGE. Nigeria.

Holotype ♂, NIGERIA: Ikom, Ogolo Prov. iii.1956 (Jackson) (BMNH).
Paratype. NIGERIA: Ikom, Ogolo Prov., xi.1955 (Jackson), 1 ♀ (allotype) (BMNH)

Euxanthe* (*Hypomelaena*) *tiberius Grose-Smith

Euxanthe* (*Hypomelaena*) *tiberius tiberius Grose-Smith

(Pl. 16, figs 117–122, Text-fig. 2)

Euxanthe tiberius Grose-Smith, 1889 : 129.
Euxanthe tiberius f. *tiberiella* Strand, 1911 : 120.

MALE. Fore wing length 45–50 mm. Shape, costa curved, apex blunt, outer margin outwardly curved. Hind wing rounded, edge slightly undulating. *Upperside.* Fore wing, ground colour jet black, base with a large bright rufous-chestnut patch, filling most of the cell and the bases of spaces 1a, 1b and extending to the base of the costa. Pattern of greenish white spots in three rows, the discal row large, the spot at end of cell triangular, followed by a larger inverted triangle at base of 4, with a smaller triangular mark at base of 3, then a large elongate spot in 2 extending distad, followed by a horseshoe-shaped mark in 1b; postdiscal row of more ovoid marks extend from costa to 3, more or less in line, then continued down the border as smaller spots; apex with ovoid spots decreasing in size to 4. Hind wing, ground colour uniform black, very slightly brownish at base of costa. The only pattern is a series of greenish white spots in the upper submargin, somewhat variable in number, those in 7–6 being the largest and most constant; the admargin with a series of very small double dots, usually triangular in shape, often fading out at the upper angle. *Underside.* Fore wing, ground colour black in the discal area but browner in the apex and along the outer border. Base with the chestnut area as on upperside, the brown extending along the base of the costa; white dots present on base of costa and base of cell; pattern of pale greenish white spots as on upperside. Hind wing, darker brownish with black rays along the veins and mid cellules. Triangular white dots present at base of wing and costa; spots on submargin and admargin as on upperside or limited to one at upper angle.

Occasionally a dwarf specimen of either sex is taken in which the markings appear large in relation to the areas of the wings.

FEMALE. Fore wing length 50–53 mm. Shape somewhat like that of the male, but outer margin less outwardly curved. *Upperside.* Fore wing, ground colour black, with basal chestnut strong and well defined; the series of spots in the discal line pale greenish white arranged as in the male, somewhat variable in size, especially those at and beyond the end of the cell; the spots in the postdiscal line more whitish but also slightly variable. The spots in the submarginal line white and rather rounded, those in spaces 4 and 5 sometimes vestigial. Margin of wing with small white linear marks on the edge. Hind wing, a large white somewhat rounded area very slightly tinged with greenish, especially in the cell, the white area extending onto the inner fold but its upper border, which is rounded, starts just short of the dark base of the wing and cell, and does not reach the subcosta, its outer border more irregular, invaded by black along the veins. The border is widely black, with a row of white rounded spots in the submarginal line, that in 6 large and ovoid, the spots decreasing in size toward the hind angle; the admargin with a series of double angular white spots with a trace of smaller white lines nearer the edge which has an interrupted white fringe. *Underside.* Fore wing, ground colour black in the discal zone, shading to dull rufescent brown along the costa and the outer border. Base of wing with the rufous-chestnut patch as on upperside. Pattern of pale greenish white spots on upperside, those at the end of the cell slightly increased in size. Hind wing, ground colour rufescent brown, slightly darker on the border; discal whitish patch more clearly defined on border, invaded by dark veins and intermediary black lines which stop short of the edge of the patch. Submarginal white spots as on upperside, those on the admargin outlined in black, the intermediary white dots more in evidence.

For an account of early stages vide van Someren & Rogers (1928; 1932).

RANGE. Coastal forests of Kenya (Rabai Hills, Shimba Hills, Marima Hill); also recorded from the lower forests of the Usambara Range at Amani, Tanzania.

BIOLOGICAL NOTES

By D. G. Sevastopulo

(Pl. 17, figs 129–136)

OVUM. Spherical, the top fluted and only slightly flattened. Pale creamy when first laid, turning to a pale pinkish tan within 24 hours, finally becoming fairly dark brown all over. Deposited singly on the upper surface of a leaf of the foodplant. Laid 25.viii.64. Hatched 31.viii.64.

LARVA. *1st instar.* Head dark brown, rugose, the upper and lateral horns about the same length, slightly dentate, the lateral horns upcurved, the upper slightly divergent, incurved apically, the tips white. Body golden-brown, under a lens with a subdorsal, lateral and sublateral series of minute white papillae emitting colourless setae. Anal processes long, slender, curved, blackish tipped with white. Moulted 4.ix.64.

2nd instar. Head dark brown with two paler transverse lines, the lateral horns both longer and stouter than the upper, two short spines between the upper, and a single spine between the upper and lateral and another below the lateral, all horns dentate and tipped with white. Body olive, very minutely papillated with white, the sublateral area tinged with crimson. Venter, legs and prolegs dark crimson. Anal processes as before. Moulted 9.ix.64.

3rd instar. Very similar to preceding, the two pale transverse lines on the head more noticeable and the horns longer, both actually and relatively. A fine white sublateral line above the crimson suffusion. Later in the instar a subdorsal white dot appears on the sixth somite. Body noticeably tapered from the ninth somite caudad. Moulted 14.ix.64.

4th instar. Head whitish, two blackish transverse dentate bands, one just below the vertex, the other about central; upper horns slender, straight, slightly divergent, black at the base shading into greyish, the spines between black; lateral horns long and slender, horizontal, the tip upturned, colour white with the base and apex black, the spine between the upper and lateral horns white. Body much as in previous instar, the white subdorsal dots on the sixth somite ringed with black. Eighth somite with a smaller and less distinct white subdorsal dot. Anal processes no larger than before, and so proportionately smaller. After twenty-four hours the markings on the sixth somite become a whitish diamond, finely rimmed with black and containing two dark green dots. Moulted 20.ix.64.

5th (final) instar. Head whitish, deeply punctate, each cheek with a diffuse olive spot divided vertically, a zig-zag olive transverse line on the level of the clypeus, which is filled in with pale green, and with two black spots set obliquely below it; horns similar in shape to previous instar, the lateral tipped with black and black behind, the upper black basally in front, the spines between the upper pair black, the jaws and posterior aspect of the head black. Body green, minutely shagreened with blue-white specks. Dorsal marks on the sixth and eighth somites diamond-shaped, pinkish white and studded with opalescent dots, edged with black and containing two black spots, the whole distinctly raised above the general body level. Anal processes pinkish buff, short and stout, slightly incurved and joined by a transverse pinkish buff band. A pinkish buff sublateral line studded from second to ninth somites with fleshy whitish points. Legs green. Prolegs purplish. Venter green, shading into deep purple laterally. Pupated 30.ix.64.

Pupa. Suspended by the cremaster. Mainly shining, rather translucent, dark green, marked with opaque bluish white as follows: a mark on the eye, a basal and submedian stripe across the wing joined by a connecting bar, and an irregular stripe along the outer margin, a broad transverse band across the third and fourth abdominal somites, containing a green, heart-shaped, dorsal mark on the third. Spiracles black ringed with white. Shape with the head slightly indented frontally, the thorax slightly keeled, wings laterally expanded across the tornus, abdominal somites rising to a transverse ridge on the third somite, which has a subdorsal prominence, and then tapering to the cremaster. Cremaster slender, green, with paired rounded projections on the dorsal aspect and a double projection ventrad. A male emerged 11.x.64.

Foodplant. *Deinbollia* sp. (Sapindaceae).

Described from a larva reared from an ovum laid by a female caught in the Makadara Forest.

Euxanthe* (*Hypomelaena*) *tiberius meruensis van Someren

(Pl. 17, figs 123–128)

Euxanthe tiberius meruensis van Someren, 1935 : 172.

Male. Fore wing length 44–46 mm. Shape as in the nominate race. *Upperside.* Fore wing, general pattern similar to that of *t. tiberius*, the rufous patch brighter and more extended, with a small yellowish dot beyond. Discal and postdiscal rows of spots, though similar in form to those of nominate *tiberius*, are all ochre-yellow. Submarginal spots white. Hind wing, ground colour slightly more brownish tinged, especially at base. Submarginal and marginal spots as in the nominate race. *Underside.* Fore wing, rufous patch brighter; distal portion of wing along the costa and apex brighter rufescent brown, with distinct black rays along the veins and intermediate spaces, the latter joining the submarginal subapical white spots with the ochreous ones. The discal spots formed as on upperside, all ochreous in colour on a black ground. A small white spot in margin. Hind wing, ground colour more rufescent brown; black rays slightly more distinct; submarginal and admarginal spots white with black surrounds.

Female. Fore wing length 50–53 mm. *Upperside.* Fore wing, ground colour less intense black, more brownish black. The brownish rufescent area brighter and more extended. The discal row of spots narrower in spaces 2–3, all ochreous in colour. The postdiscal are also ochreous; the submarginal spots white. There is also an ochreous streak in the hind margin at about midpoint. Hind wing, ground colour less intense black, more tinged with brownish in the mid zone; the discal ochreous marking is narrower, being straighter on the hind border and not extending so much into the inner fold, the upper and outer borders straighter. The admarginal double spots white. *Underside.* Forewing ground colour in the apical half more rufescent and darker zone in the discal line not so black. The rufous patch at the base brighter. The spots in the discal zone ochreous; those on the submargin white. The streak on the hind margin similar to that of upperside, but larger. Hind wing, ground colour more rufescent brown, the discal patch restricted as on upperside, pale ochreous in colour. The black rays and veins distinct. Postdiscal spots as on upperside, ochreous in colour. Admarginal spots white with black surrounds. Edge very narrowly white in interspaces.

Range. This very distinct race occurs in the forests on the lower slopes of eastern Mt Kenya, but is more plentiful in the lower Meru forest. It is also found in the forests in the Meru Game Park.

SYSTEMATIC LIST

Euxanthe* (*Euxanthe*) *eurinome (Cramer)

Euxanthe (*Euxanthe*) *eurinome eurinome* (Cramer, 1775). Type-locality: 'Indies Orient' (patria falsa). Africa Occidens.

Range: Sierra Leone, Ivory Coast, Ghana, Nigeria, Fernando Po,? Cameroun.

eurinome ansellica (Butler, 1870). Type-locality: Angola, Kinsembo.
f. *burgeoni* Le Cerf, 1925. Type-locality: E. Zaire, Kindu.
var. *radiata* van Someren & Rogers, 1927. Type-locality: Central Uganda.
Range: Angola, Central African Republic, central and eastern Zaire, west and central Uganda.

eurinome celadon Le Cerf, 1923. Type locality: Gabon.
Range: Gabon.

eurinome elgonae subsp. n. Type-locality: Mt Elgon.
Range: N.E. Kenya in the Elgon area, Uganda, W. Nile district, Metu.

eurinome birbirica Ungemach, 1932. Type-locality: Ethiopia, S.E. Youbdo.
Range: S.E. Ethiopia, Youbdo district.

Euxanthe (Euxanthe) crossleyi (Ward)

Euxanthe (*Euxanthe*) *crossleyi crossleyi* (Ward, 1871). Type-locality: Cameroun.
f. *niepelti* Bryk, 1939. Type-locality: Bipindi.
Range: Cameroun, Central African Republic, Zaire, Gabon, Zambia.

crossleyi ansorgei Rothschild & Jordan, 1903. Type-locality: N.W. Kenya.
f. *babbingtoni* Stoneham, 1943. Type-locality: N.W. Kenya.
Range: N.W. Kenya, Nandi and Teriki Hills, Elgon.

crossleyi magnifica Rebel, 1914. Type-locality: Zaire, Nawambi-Irumu.
= *intermedia* Joicey & Talbot, 1921. Type-locality: Zaire, Ituri Forest.
Range: Zaire, E. and W. Uganda.

crossleyi claudiae Rousseau-Decelle, 1934. Type-locality: Zaire, Katanga, Kafakumba.
Range: Zaire in the Katanga district.

Euxanthe (Euxanthe) wakefieldi (Ward)

Euxanthe (*Euxanthe*) *wakefieldi wakefieldi* (Ward, 1873). Type-locality: E. Africa at Ribe, coastal hinterland.
f. *rubiginea* Le Cerf, 1923. Type-locality: Tanzania, Nguru.
Range: coastal forests of Kenya, Tanzania extending S. to Delagoa Bay, Malawi and inland to Zambia.

Euxanthe (Euxanthe) madagascariensis (Lucas)

Euxanthe (*Euxanthe*) *madagascariensis* (Lucas, 1842). Type-locality: Madagascar.
Range: Malagasy Republic.

Euxanthe* (*Hypomelaena*) *trajanus (Ward)

Euxanthe (*Hypomelaena*) *trajanus trajanus* (Ward, 1871). Type-locality: Cameroun.
= *schatzi* Staudinger, 1885. Type-locality: Cameroun.
Range: Cameroun and adjacent countries to W. of Congo River.
trajanus vansomereni Poulton, 1929. Type-locality: Uganda, Mawakota District.
Range: Uganda, central forests extending east to Mabira Forest.
trajanus gabonicus Le Cerf, 1923. Type-locality: Gabon, Lambareni on Ogowe River. Status doubtful through lack of material.
f. *depuncta* Le Cerf, 1923. Type-locality: Gabon, Ngemo on Ogowe River.
Range: Gabon, Ogowe River.
trajanus antonius Rousseau-Decelle, 1930. Type-locality: Zaire, Katanga, Kafakumba.
Range: as type locality.
trajanus nigeriae subsp. n. Type-locality: Nigeria, Ikom.
Range: Nigeria.

Euxanthe* (*Hypomelaena*) *tiberius Grose-Smith

Euxanthe (*Hypomelaena*) *tiberius tiberius* Grose-Smith, 1889. Type-locality: Mombasa area.
f. *tiberiella* Strand, 1911. Type-locality: Tanzania, Amani. Range: coastal forests of Kenya and the Usambara Range, Tanzania.
tiberius meruensis van Someren, 1935. Type-locality: Meru, Kenya. Range: East Mt Kenya, lower Meru forest and Meru Game Park.

A BRIEF HISTORICAL REFERENCE

Rothschild & Jordan (1898; 1900; 1903) published the results of their investigation into the genus *Charaxes* and its allies in their monumental work *A Monograph of Charaxes and the Allied Prionopterous Genera.* They employed the 'omnibus' genus *Charaxes* for all the African species with the exception of *Palla* and *Euxanthe,* which they dealt with in 1903.

Aurivillius (1911), when dealing with the African Rhopalocera, arranged the species in groups under the genus *Charaxes,* retaining *Palla* and *Euxanthe* as distinct genera.

Stichel (1939) gave a full list of the African 'Charaxidinae', supplying at the same time an exhaustive list of references, a monumental work in itself. He followed the general arrangement of Poulton (1926) but rearranged the groups and some of the species within them.

Peters (1952) published his *A Provisional Check-list of the Butterflies of the Ethiopian Region* and, in the section on 'Charaxidinae', also followed Poulton (1926) and the general arrangement adopted by the British Museum (Natural History). Poulton had divided the genus *Charaxes* into the Hadrodontiae and Leptodontiae based on the character of the fore wing costa. The Hadrodontiae have the costa coarsely serrate and include species No. 1–55 in my Synoptic List compared with the Leptodontiae with the costa finely serrate which contain the remaining species No. 56–119 of the Synoptic List. These ‘subgenera’ were divided into groups and subgroups but Peters placed *Euxanthe* before and *Palla* after *Charaxes*.

In my *Revisional Notes on African Charaxes*, I have endeavoured to reassess the species and subspecies occurring in Africa and the adjacent islands, including Madagascar. I have not followed any accepted order or grouping but have left this to the Synoptic List, which broadly follows Peters (1952). Where I have advocated a departure from the hitherto accepted classification I have done so as a result of personal study of the imagines, as well as the early stages and foodplants, by rearing many broods from captive females of a great number of species. Thus I have endeavoured to make some sense of the ‘black’ *Charaxes* centred around *Charaxes etheocles*.

Certain species appear to form compact groups, based on morphological characters; thus *varanes*, *fulvescens* and *acuminatus* all have characters in common and feed on *Allophylus* (Sapindaceae) and are now placed in the subgenus *Stonehamia* (Cowan, 1968 : 6), which replaces *Hadrodontes* Stoneham.

On the evidence of the early stages and foodplants I have followed Rydon (1971) and raised both *Palla* and *Euxanthe* to subfamily status (Pallinae and Euxanthinae), retaining the subgeneric name *Hypomelaena* Aurivillius for the two species with black undersides in the males, viz. *trajanus* and *tiberius*.

When the early stages of the *Charaxes doubledayi-mycerina* group have been recorded the probability is that this group, too, will warrant subfamily status.

CORRIGENDA TO PARTS I–IX

PART I.

p. 197 line 13	for ‘*pythodorus*’ read *pythodoris*
,, 38	for 1925 read 1911–12
,, 39	after ‘his’ insert *A Provisional*
	after ‘*Check*’ insert hyphen
	after ‘*the*’ insert *Butterflies of the*
	after ‘*Ethiopian*’ insert *Region*
p. 198 line 2	delete ‘*Butterflies*’
p. 205 ,, 37	for ‘Cramer’ read (Cramer)
,, 39	delete ‘*Charaxes*’ insert *Papilio Eques Achivus*
	for ‘1776’ read 1775–76
p. 206 line 4	for ‘*Check List*’ read check-list
p. 207 line 19	for ‘Cramer’ read (Cramer)
,, 20	ditto
p. 220 line 32	for ‘*PYTHODORUS*’ read *PYTHODORIS*
,, 36	for ‘*pythodorus*’ read *pythodoris*
,, 41	for ‘*pythodorus pythodorus*’ read *pythodoris pythodoris*

p. 221 Caption for 'PYTHODORUS PYTHODORUS' read PYTHODORIS PYTHODORIS
Legend for '*pythodorus*' read *pythodoris*
p. 222 line 8 for **'pythodorus pythodorus'** read ***pythodoris pythodoris***
„ 10 for '*pythodorus*' read *pythodoris*
p. 223 line 13 ditto
„ 14 for **'pythodorus'** read ***pythodoris***
„ 33 ditto
p. 224 line 24 ditto
„ 26 for '*pythodorus*' read *pythodoris*
„ 42 ditto
p. 225 line 23 for **'pythodorus'** read **'pythodoris'**
„ 24 for '*pythodorus pythodorus*' read *pythodoris pythodoris*
p. 233 line 2 for **sp.** read **ssp.**
25 after 'male' insert colon
Index for 'pythodorus' read pythodoris
Pl. 12 Legend line 4 for '*pythodorus pythodorus*' and '*pythodorus*' read *pythodoris pythodoris* and *pythodoris*
Pl. 13 Legend line 2 for '*pythodorus*' read *pythodoris*

Part II.

p. 206 line 25 for '(Schultze)' read Schultze
Pl. 1 Legend line 2 for 'Cramer' read (Cramer)
line 3 ditto
„ 4 for 'Stoll' read (Stoll)
„ 5 ditto
„ 6 ditto
Pl. 2. Legend line 2 for 'Cramer' read (Cramer)
Pl. 3 ditto
Pl. 4 ditto
Pl. 5 ditto
Pl. 6 ditto
Pl. 7 ditto

Part III.

p. 47 after line 11 insert 3. The *Charaxes etheocles* (s.l.) Complex Part 1
line 12 delete '3'
„ 15 delete
„ 16 „
„ 17 „
p. 69 lines 32, 33 transfer to after line 18
p. 70 after line 11 insert 3. The *CHARAXES ETHEOCLES* (s.l.) Complex Part 1

p. 70 line 12 delete '3'
,, 16 after '*Charaxes*' insert *etheocles*
,, 17 after 'Jordan' insert as a subspecies of *etheocles*
p. 74 line 27 delete
lines 28–33 transfer to p. 97 below line 25
p. 90 line 14 for '269' read 270
p. 92 line 5 delete '1889' insert 1899
p. 96 line 20 for 'Chriten' read Christon
p. 97 after line 25 insert lines 28–33 from p. 74
p. 98 line 30 delete 'Delagoa Bay, Zomba and Taveta'

Part IV.

p. 279 line 6 for 'Boisduval' read (Boisduval)
,, 12 for 'CRAMER' read (CRAMER)
,, 21 for 'BOISDUVAL' read (BOISDUVAL)
p. 281 line 23 for 'Boisduval' read (Boisduval)
,, delete *Charaxes* insert *Nymphalis*
p. 287 after line 10 insert Allotype female. Same data as holotype.
p. 288 line 16 for '32' read 23
p. 291 line 40 for '*citheronoides*' read *cithaeronoides*
p. 311 line 10 delete 'Kilimanjaro at Wasendo, 6000 ft. Type ♂.' insert Type male. Type locality. Tanzania, Usambara Range, Magamba Forest nr Lushoto.
,, 13 for 'CRAMER' read (CRAMER)
,, 34 for 'Cramer' read (Cramer)
,, 36 delete '*Charaxes*' insert *Papilio Eques Achivus*
p. 315 line 1 for '*CHARXAES*' read *CHARAXES*
,, 13 for 'Cramer' read (Cramer)
,, 14 ditto
p. 316 line 8 for 'Charaxes' read *Charaxes*
Pl. 9 legend line 2 for 'Cramer' read (Cramer)
,, 5 ditto

Part V.

p. 77 line 16 After 'COMPLEX' insert, PART 2
p. 81 Map 1 Key, abbreviation for *Charaxes* is *Ch.*, not '*C*', also on Maps 3–7 and throughout text.
p. 98 line 36 ditto
p. 99 after line 29 insert '*Nymphalis ephyra* Godart t.c.
p. 101 line 33 for 'Godart' read (Godart)
p. 114 line 10 for '*hollandi*' read = *hollandi*
,, 20 delete '*hollandi*' insert *ephyra*
p. 125 line 30 delete '25 : 42–43' insert 32 : 141–172

p. 132 Map 6 Key line 22 for 'Som' read Son
,, 26 for '*figini*' *read fagini*
p. 133 after line 27 insert *Charaxes chanleri* Holland, 1896a : 262 [♂]
line 28 for '1895 : 753' read 1896b : 753 [♀]
p. 165 Index for 'catachrous' read catochrous
p. 166 ,, after line 16 insert fagini, 149

PART VI.

p. 199 line 8 for 'DEWITZ' read (DEWITZ)
,, 12 for 'CRAMER' read (CRAMER)
,, 18 for 'DRURY' read (DRURY)
,, 28 for 'DEWITZ' read (DEWITZ)
,, 28 abbreviations for *Charaxes* is *Ch.*, not '*C*' throughout text and on Maps
p. 212 line 36 for 'CRAMER' read (CRAMER)
p. 214 line 4 for 'Cramer' read (Cramer)
,, 27 for 'Cramer' read (Cramer)
,, 29 for '*eques*' read *Eques*
p. 221 after line 23 insert *Charaxes brutus andara* Ward, Rothschild & Jordan, 1900 : 435
p. 222 line 40 for '(Cramer, 1779)' read (Cramer), 1779.
p. 235 line 20 for '*quanzensis*' read *cuanzensis*
p. 236 line 19 for 'DRURY' read (DRURY)
p. 238 line 32 for 'Drury' read (Drury)
p. 239 line 20 ditto
,, 22 delete '*Charaxes*' insert *Papilio Eques Achivus*
p. 247 line 22 for 'Drury' read (Drury)
,, 23 ditto
Pl. 1 legend line 3 for 'Dewitz' read (Dewitz)
Pl. 3 line 4 for 'Cramer' read (Cramer)
Pl. 8 line 3 for 'Drury' read (Drury)
Pl. 9 line 2 ditto
Pl. 10 line 2 ditto

PART VII.

p. 183 line 7 for 'CRAMER' read (CRAMER); for '*hansalii*' read *hansali*
,, 9 ditto
,, 25 ditto; for ***'HANSALII'*** read ***HANSALI***
,, 26 for 'Cramer' read (Cramer)
p. 184 line 5 ditto
p. 190 line 14 for ***'hansalii hansalii'*** read ***hansali hansali***
p. 191 caption line 1 for 'HANSALII' read 'HANSALI'
lines 2–5 for '*hansalii*' read *hansali*
line 5 for ***'hansalii'*** read ***hansali***

p. 192 line 35 for ***'hansalii'*** read ***hansali***
p. 193 line 5 for ***'hansalii'*** read ***hansali***
„ 19 for 'Cramer' read (Cramer)
„ 20 ditto
„ 26 for *'antigua'* read *antiqua*
p. 194 line 2 for ***'hansalii'*** read ***hansali***
„ 3 for *'hansalii hansalii'* read *hansali hansali*
„ 5 for *'hansalii'* read *hansali*
„ 12 ditto
„ 14 ditto
„ 16 for 'CRAMER' read (CRAMER)
„ 18 for 'Cramer' read (Cramer)
p. 195 line 4 for *eques* read *Eques*
p. 207 line 41 for 'Hewitson' read (Hewitson)
p. 225 Index after 'adusta' insert aginga, 186
for *'antiqua'* read antiqua
p. 226 index for 'hansalii' read hansali
Pl. 1 Legend line 2 for 'Cramer' read (Cramer)
Pl. 2 „ 2 ditto
Pl. 3 legend lines 9–11 for *'hansalii'* read *hansali*
Pl. 4 legend line 2 for *'hansalii'* read *hansali*
Pl. 5 „ 2 for 'Cramer' read (Cramer)
Pl. 8 „ 6 for 'Hewitson' read (Hewitson)
„ 7 ditto
Pl. 9 „ 6 for 'Drury' read (Drury)
„ 7 ditto

PART VIII.

p. 217 line 9 for 'DEWITZ' read (DEWITZ)
„ 11 for *'thysii'* read *thysi*; for *'C.'* read *Ch.*
„ 20 for 'CRAMER' read (CRAMER)
„ 22 for 'HEWITSON' read (HEWITSON)
for *'C'* read *Ch.*
„ 27 ditto
for 'SCHULTZ' read SCHULTZE
„ 31 for *'mccleeryi'* read *maccleeryi*
p. 218 line 2 for 'DEWITZ' read (DEWITZ)
p. 219 line 15 for 'Dewitz' read (Dewitz)
„ 16 ditto
„ 21 for ***'THYSII'*** read ***THYSI***; for ***'C.'*** read ***CH.***
„ 23 for ***'thysii'*** read ***thysi***
. 220 caption line 4 for *'thysii'* read *thysi*

p. 222 line 12	for '1925' read 1926
,, 31	for ***'thysii'*** read ***thysi***
,, 32	for '*thysii*' read *thysi*
,, 38	for '1925' read 1926
p. 227 line 33	for '211' read 271
p. 228 line 14	after Cottrell). delete
line 13	for 'Lisombe' read Lisombo
,, 15	delete
,, 16	delete 'Malawi and adjacent'
p. 235 line 29	for 'CRAMER' read (CRAMER)
p. 240 line 3	for ***'Cramer'*** read (Cramer)
,, 4	for 'Cramer' read (Cramer)
,, 30	for **'C'** read **CH.**
	for 'HEWITSON' read (HEWITSON)
p. 241 line 23	for '1865' read 1859
p. 245 line 14	for 'Ungemache' read Ungemach
,, 20	for ***'C'.*** read ***Ch.***
,,	for 'Hewitson' read (Hewitson)
,, 21	for '1865' read 1859
p. 253 line 24	for ***'barnesi'*** read ***barnsi***
,, 26	for '*barnesi*' read *barnsi*
p. 254 line 38	for ***'barnesi'*** read ***barnsi***
,, 39	for '*barnesi*' read *barnsi*
p. 255 line 3	for ***'C.'*** read ***CH.***
	for ***'MCCLEERYI'*** read ***MACCLEERYI***
p. 257 line 21	for ***'mccleeryi'*** read ***maccleeryi***
,, 27	for '*mccleeryi*' read *maccleeryi*
p. 258 line 31	for '*Kleilland*' read *Keilland*
,, 42	for ***'mccleeryi'*** read ***maccleeryi***
,, 43	for '*mccleeryi*' read *maccleeryi*
p. 260 line 32	delete **'ssp. n.'** insert van Someren
	after line 33 insert See *Charaxes xiphares kilimensis* van Someren, 1969 : 82
	lines 34–46 delete
p. 261	delete
p. 262	lines 2–6 delete
	after line 9 insert *Charaxes imperialis ludovici* Rousseau-Decelle, Stichel, 1939 : 452
line 12	for 'race,' read race. and delete remainder of sentence.
,, 14	delete '(Grahame coll.)' (MNHN, Paris)
,, 23	delete 'ssp.n.' insert van Someren, 1969.
p. 264 Index	for 'barnesi' read barnsi
	for 'mccleeryi' read maccleeryi
	for 'lecerfi, 232' read lecerfi, 222
	for 'thysii' read thysi
Pl. 1 Legend line 4	for '*hibldeandti* Dewitz,' read *hilderbrandti* (Dewitz),

Pl. 1 Legend line 5	for 'Dewitz' read (Dewitz)
,, 8	for '*thysii*' read *thysi*
,, 11	for '*lecer¼*' read *lecerfi*
,, 13	ditto
Pl. 7 Legend line 7	for 'Cramer' read (Cramer)
,, 9	ditto
Pl. 8 Legend line 8	for 'Hewitson' read (Hewitson)
,, 9	ditto
,, 10	ditto
,, 11	ditto
Pl. 11 Legend line 8	for '*barnesi*' read *barnsi*
Pl. 12 legend line 7	for '*mccleeryi*' read *maccleeryi*
,, 9	ditto
,, 14	delete '(I. Grahame)' insert (MNHN, Paris)
,, 15	delete

Part IX.

p. 417 line 8	for 'TRIMEN' read (TRIMEN)
,, 10	for 'GODART' read (GODART)
,, 16	for 'DRURY' read (DRURY)
,, 22	for 'WESTWOOD' read (WESTWOOD)
,, 25	for 'GODART' read (GODART)
,, 28	for 'DRURY' read (DRURY)
,, 31	for 'STOLL' read (STOLL)
,, 35	for 'GODART' read (GODART)
,, 39	for 'CRAMER' read (CRAMER)
p. 418 line 2	for 'TRIMEN' read (TRIMEN)
,, 3	for 'Trimen' read (Trimen)
,, 16	ditto
,, 18	delete '*Charaxes*' insert *Nymphalis*
p. 424 line 35	for 'Trimen' read (Trimen)
,, 36	ditto
p. 425 line 13	for 'GODART' read (GODART)
p. 444 line 25	for 'Westwood' read (Westwood)
p. 452 line 26	for 'Godart' read (Godart)
,, 28	delete '*Charaxes*' insert *Nymphalis*
p. 460 line 13	insert *Nymphalis* before *nesiope*
p. 462 line 3	for 'his' read Rochat
,, 23	for 'Plantrou' read Rochat
,, 29	for 'Godart' read (Godart)
,, 30	ditto
p. 463 line 19	for 'Drury' read (Drury)
p. 466 line 19	insert *Nymphalis* after '*Papilio*'; for '*phaleratus*' read *Phaleratus*; for '1872' read 1782

p. 467 line 33	for 'Stoll' read (Stoll)
p. 470 line 3	insert Pl. 15, fig. 168
p. 472 line 3	delete 168 insert 167
p. 476 line 8	for 'CRAMER' read (CRAMER)
p. 480 line 24	for '(Cramer, 1764).' read (Cramer), 1764.
,, 28	for '(Mabille, 1876).' read (Mabille), 1876.
p. 483 line 44	for '***lactitinctus*** Karsch' read ***lactetinctus ungemachi*** Le Cerf
,, 46	for '*lactitinctus*' read *lactetinctus*
p. 486 Index	for lactitinctus read lactetinctus
p. 487 Index	for '*ungemachi*' read ungemachi
Pl. 1 Legend line 2	for '*Trimen*' read (Trimen)
,, 4	for 'Trimen' read (Trimen)
,, 6	ditto
,, 7	ditto
,, 8	ditto
Pl. 9 Legend line 4	for 'Godart' read (Godart)
,, 5	ditto
,, 6	ditto
Pl. 11 Legend line 14	for 'Drury' read (Drury)
,, 15	ditto
,, 16	ditto
Pl. 12 Legend line 4	ditto
Pl. 13 Legend line 8	for 'Stoll' read (Stoll)
,, 9	ditto
,, 10	for 'Godart' read (Godart)
,, 11	ditto
Pl. 14 Legend line 4	ditto
,, 5	ditto
,, 6	for '*thomassius*' read *thomasius*
Pl. 15 Legend line 9	delete '& 168' and one ♀ symbol after line 9 insert Fig. 168 *candiope thomasius* Staudinger & Schatz ♀ (Sao Thomé)
Pl. 17 Legend line 2	for 'Cramer' read (Cramer)
Pl. 18 Legend line 14	for '*lactitinctus*' read *lactetinctus*
,, 16	ditto

ADDENDA

Since the submission of the typescript, photographs and maps for Part X of my Revisional Notes on African *Charaxes*, several new species and subspecies have been added to the taxa dealt with in this series. The following addenda include the data, both published and unpublished, which have come to my notice up to June 1974. The opportunity is also taken to elevate certain taxa within the 'black *Charaxes*' complex to specific status and to re-name certain taxa which have been found to be homonymous. I am indebted to Mr T. G. Howarth, Dr A. H. B. Rydon and to Mr C. F. Huggins for much help with the preparation of these addenda and also wish to thank Messrs W. H. Henning, S. C. Collins and R. S. White for the loan of material and coloured photographs.

FURTHER DESCRIPTIONS AND NOTES ON SPECIES AND SUBSPECIES OF *CHARAXES*

Charaxes fulvescens (Aurivillius)

Charaxes fulvescens (Aurivillius); van Someren, 1963 : 210.

Dr M. Condamin of I.F.A.N., Dakar, has recently drawn my attention to the fact that *Charaxes fulvescens* extends into Senegal, but it is here represented by a distinct subspecies. Through the kindness of Dr Condamin I have been able to examine a series of three males and two females.

Charaxes fulvescens senegala **subsp. n.**

MALE. Fore wing length 43–45 mm. Apex bluntly pointed, outer margin slightly concave in spaces 3–5. Hind wing margin rather rounded with a short blunt tail, 5 mm in length at vein 4. *Upperside.* Ground colour darker than in nominate race. Fore wing, basal area more fulvous but paler at the base of the hind wing, but both with a slight greenish tinge. Discal zone more rufescent, especially in hind wing where it borders on the darker distal portion of the wings. Fore wing with a series of large rufous-tawny spots in the post discal line, extending from the subcosta to 1*b* flanked by a more obscure series in the submarginal zone. Two large contiguous spots present beyond the cell; flanked by dark spots at apex of cell and the subbasal areas of spaces 4–2. Hind wing, basal area as fore wing with a strong rufescent zone bordering the proximal edge of the dark border carrying a series of somewhat rounded obscure dark spots. Edge of wing slightly rufous. *Underside.* Fore wing, basal area dark greyish brown with a few fine black lines and dots towards the base, accentuated in the discal line by a blacker line edged distally with whitish. This line is angled at vein 6, then curves to the hind margin and continues in the hind wing where it is almost straight from mid-costa to the hind angle. The distal portions of both fore and hind wing have a slight satiny sheen. A large dark ocellus in subcosta of space 6 followed by very obscure spots in the postdiscal area.

FEMALE. Fore wing length 50–51 mm. Similar in markings to male.

Holotype ♂, SENEGAL: Forêt classée Santiaba-Mandjak, 4.xi.1965 (*M. Condamin*) (MNHN, Paris).

Allotype ♀, SENEGAL: Forêt classée Santiaba-Mandjak, 19.x.1962, sur banane fermentée (Mission IFAN en Basse Casamance) (MNHN, Paris).

Paratypes. 1 ♂, same data as holotype but 13.x.1962 (IFAN, Senegal); 1 ♀, same data as allotype but 18.x.1962 (BMNH); 1 ♂, Forêt classée de Tobor, 21.xi.1961, sur banane fermentée (Mission en Basse Casamance) (BMNH).

Charaxes octavus Minig

(Pl. 18, figs 137, 138)

Charaxes octavus Minig, 1971 : 269.
Charaxes patergodarti Neidhoefer, 1972 : 5.

The description of this new species is based on a single male specimen taken at Bangui, Central African Republic. According to Neidhoefer his specimen, which is also a male from Bangui, and which is possibly the same specimen as that described by Minig, is a large insect similar in coloration to *Ch. eudoxus* and *Ch. lucretius* on the upperside. Its underside is a unique combination of both species but is closer to *lucretius*.

Charaxes ansorgei rydoni van Someren

(Pl. 18, figs 139, 140)

Charaxes ansorgei rydoni van Someren, 1967 : 309.

The description of this distinctive race was based on males only, but the female has since been taken by Mr Ivan Bampton in the Magamba Forest, Lushoto, Tanzania. I am indebted to Mr W. Henning for colour photographs of this sex.

FEMALE. *Upperside.* Fore wing length 47 mm. Basal area chestnut with obscure black marks in the mid cell and inward to its end where they merge into the black distal half of the wing, which is crossed by a series of spots, large and whitish in area 1 and 2, more ochreous in 3–4 in subcostal region. Postdiscal spots discreet and more strongly orange-ochreous, but conjoined with the discal spots in 3–4. Outer half of wing black but with conspicuous orange ochreous spots on the margin. Hindwing, basal area chestnut, shading to greyish on the inner fold. Discal band white, mainly broad but abruptly narrowing towards costa on proximal edge, but here indicated by obscure whitish marks. Outer border black, narrowing at anal angle. Admarginal orange triangular marks conspicuous, becoming linear at anal angle. Anal angle with two blue spots, lower one large. Margin serrate with long tapering pointed tails at 3 and 6. *Underside.* More boldly marked than in other races; the general pattern somewhat similar to that of the male but markings bolder and more conspicuous, the purple anal spot and one above very bold.

Neallotype ♀, TANZANIA: Usambara Mts, Lushoto, Magamba, 6000 ft, 4.iii.1973 (*I. Bampton*) (W. H. Henning Coll.).

***Charaxes eudoxus lucyae* subsp. n.**

(Pl. 18, figs. 141–144)

FEMALE. Length of fore wing 44 mm and 30 mm from mid-costa to hind angle. *Upperside.* Fore wing, basal area bright chestnut; end of cell with slightly curved black lines; discal spots black, large at bases of spaces 4 and 3, slightly indicated in upper part of 2; beyond, towards costa two black spots, irregular in shape. Discal band orange, widest at the hind margin and tapering to subapex; the three subapical spots rounded and distinct. Border of wing black, extending along veins; interspaces orange, extending to apex. Hindwing, basal area orange-chestnut, shading to greyish, tinged at base of inner fold, both shading distally into the orange-yellow band which is darker orange-yellow to above the anal angle. This is followed by a broad black band, widest at upper angle and extending to anal angle which has two blue spots. Border orange and broad margin serrate with black edge; long thin pointed tails at veins 4 and 6. *Underside.* Very orange. Fore wing, ground colour bright chestnut from base to subapex, strongly marked with black oblong spots, circular at base, more irregular, elongate in cell and linear at subapex, all strongly outlined in white. Post discal bar wide at base and triangular, becoming a series of double lunate marks. The bar is white inwardly, shaded with orange distally to margin and with conspicuous black marks in hind angle and with violet spots in 4–5. Margin of wing orange, the tips of the veins indicated as upperside. Hind wing, bright chestnut at base widening in post discal zone; the base with black lines forming elongate triangles on inner fold and lower disc, all outlined in white. Discal bars white, double at costa, then going straight to inner fold; the double lines with paler orange-chestnut between. Post discal zone bright chestnut, widest towards upper angle, then tapering towards anal angle which carries double rounded conjoined spots with bluish purple centres. The band with indistinct shading centrally, but margined distally with black, accentuated distally with white. Edge of wing orange, accentuated at margin with black.

Holotype ♀, TANZANIA: Usambara Mts, Magamba Forest, Lushoto, 6000 ft, 4.iii.1973 (*I. Bampton*). To be deposited in BMNH.

Paratype ♀, TANZANIA: Usambara Mts, Magamba Forest, Lushoto, 5000 ft, ii. 1974 (*S. C. Collins*). Deposited in BMNH.

Charaxes cithaeron cithaeron Felder

♀ aberration ***whitei* ab. n.**

(Pl. 19, figs 145, 146)

Differs from the nominate female by having the hind wing upperside discal area pale ochreous instead of bluish white. The ground colour of both wings on upper- and underside paler than normal but this may be due to the worn and tattered condition of this specimen. I have been unable to trace any record of a similar specimen in collections or in the literature.

Holotype ♀, SOUTH AFRICA: Natal, Eshowe, 8.v.1971 (*R. S. White*) B.M.1974-332.

Charaxes pythodoris davidi Plantrou

Charaxes pythodorus davidi Plantrou, 1973 : 269.

Apparently this newly described subspecies from Ivory Coast is smaller and differs in shape and markings from both the nominate subspecies and subsp. *occidens* van Someren described from Central African Republic (French Congo) and Nigeria.

Charaxes hildebrandti gillesi Plantrou

Charaxes hildebrandti gillesi Plantrou, 1973 : 274.

Apparently this newly described subspecies occurs in the Ivory Coast and Ghana and in both sexes may be distinguished from the nominate subspecies by the wider creamy white median band on the upper and underside of both fore and hind wings.

Charaxes usambarae van Someren & Jackson

♀ form ***collinsi* forma n.**

(Pl. 19, figs 147, 148)

Upperside. Differs from the nominate female in that the fore wing discal bar is wider at the base, forming a triangle from the hind margin to the cell; the spots above angles on the distal side, the uppermost slightly inset. The subapical spots white; the upper three in line, the two below smaller and inset. Two indistinct whitish spots at hind angle. Hindwing, discal bar wider and more diffuse on margins. Submarginal linear spots more distinct, so also the marginal lunules. Edge of wing slightly more serrate; tails longer and thinner. *Underside.* Fore wing, ground colour paler, darker on border. Base with three rounded black spots outlined in white followed by a wavy black line in mid cell, and a similar mark beyond, black lines at bases of spaces 1 and 2 similarly outlined. Discal white bar narrower than upperside and less distinct, the spot in space 1 only joined slightly to post discal spot which is represented above by indistinct dyslegnic spots, the upper ones representing the white subapical spots of upper side; the whole row distally bordered by dark obscure marks, most distinct at hind angle. Hind wing much as in nominate form but with median band narrower, distally outlined by darker zigzag line. Submarginal line as in upperside but less distinct, ending in three spots in anal angle. Marginal border less distinct than upperside.

Holotype ♀, TANZANIA: Usambara Mts, Amani. Bred on *Albizzia* sp. by African collector for S. Collins. x. 1973. Deposited in BMNH.

Charaxes martini van Someren

(Pl. 19, figs 149, 150)

Charaxes martini van Someren, 1966 : 96 [♂].
Charaxes martini van Someren, 1974 : 483 [♀].

This hitherto elusive species appears to be confined to the higher ground of Mlange Mt, especially near the Malosa Stream, in Malawi. When first described it was known only from the male and later a very damaged female was described. A female specimen in good condition has since been taken in the type-locality by Dr C. H. McCleery who has kindly supplied the photographs which are reproduced here. The male is characterised by the diffuse greenish subapical spots of the fore wing and the conspicuous greenish band in the discal portion of the hind wing, followed by a complete row of white spots; the margin strongly marked with reddish and greenish markings. The underside is strongly marked on a silvery ground by black lines. The female is also boldly marked both on the upper- and undersides. The pattern is very similar to that of the male. The upperside median bar is slightly tinged with yellowish and is slightly more tinged with greenish on the lateral edging of the hind wing. The hind wing underside is rather silvery with a greenish post discal bar. The tails are longer than those of the male.

Charaxes mafuga van Someren

(Pl. 19, figs 151, 152)

Charaxes mafuga van Someren, 1969 : 97.

This species was originally described from male specimens taken in the Mafuga area of Kigezi in S.W. Uganda. The female had not been authentically identified until it was bred from a larva found by Mr I. Bampton in the same area.

FEMALE. Larger than the male but with the same distinctive underside. Fore wing length 37·5 mm. *Upperside.* Fore and hind wing ground colour black, slightly more brownish towards base of fore wing. Fore wing, discal line of spots from beyond the cell blue, almost straight except for spot in apex of cell, gradually increasing in size to hind margin; post discal spots of subapex in a line, followed by spots of increasing size, those towards the hind margin larger and contiguous with the discal spots. Hind wing, blue band almost straight on inner edge, single on the costa but fused beyond but not reaching the inner fold. Submarginal marks linear and blue and distinct, double at anal angle. Admarginal marks linear to upper tail; edge of wing bluntly serrate, bluish olive in colour. Tails; upper slightly spatulate, lower shorter and pointed. *Underside.* Fore wing, greyish brown in basal area, more brownish distally. Base crossed by fine black lines; disc crossed by greyish white bar, widest towards the end of cell, accentuated distally by darker brown separating it from the whitish post discal series of silvery grey dyslegnic spots which are conjoined with those of the subapex. This bar is accentuated distally by a series of brownish grey marks widest towards the hind angle, this in turn is accentuated by silvery grey, which is more brownish towards the outer margin. Hind wing, basal area silvery grey, paler towards the inner fold, crossed in the subbase by a whitish bar. Discal bar distinct, narrower and zigzag in mid area, widening to the costa but here accentuated by the darker brown post discal band which carries a series of crescentic marks distally. Border pale grey with a series of white linear marks outwardly edged with blue; margin narrowly edged with orange that has a greenish tinge.

Neallotype ♀, UGANDA, Ruhiza, Impenetrable Forest, 8000 ft, 28.ix.1972 (*I. Bampton*) B.M.1972–571.

A FURTHER NOTE ON THE 'BLACK' *CHARAXES* COMPLEX

As a result of breeding from known females by Mr I. Bampton and Mr W. H. Henning in some cases, and on the evidence revealed by the examination of the male genitalia by Mr G. A. Henning and Dr A. H. B. Rydon in most cases, the raising in status of the names listed below is now suggested.

It is clear from their original descriptions that *pseudophaeus* and *chintechi* were proposed as infrasubspecific names, and have thus been strictly unavailable under the *International Code of Zoological Nomenclature* until now; *protomanica*, proposed for a form after 1960, and *vansoni*, proposed for a form of a subspecies, have also been hitherto unavailable under the *Code*. These four names thus become available now for the first time and are therefore marked 'sp. n.' in the list below. References are given to their original descriptions as forms, and their type-material is that cited at the time of these original descriptions. The remaining six names have had previous availability as species-group names.

Charaxes nyikensis van Someren **stat. n.**

Charaxes alpinus nyikensis van Someren, 1966 : 85.

Charaxes pseudophaeus van Someren **sp. n.**

Charaxes manica ♀ f. *pseudophaeus* van Someren & Jackson, 1957 : 46.
Charaxes manica ♀ f. *pseudophaeus* van Someren & Jackson; van Someren, 1966 : 89.

Charaxes chintechi van Someren **sp. n.**

Charaxes manica ♀ f. *chintechi* van Someren & Jackson, 1952 : 270.
Charaxes manica ♀ f. *chintechi* van Someren & Jackson; van Someren, 1966 : 90.

Charaxes protomanica van Someren **sp. n.**

Charaxes manica ♀ f. *protomanica* van Someren, 1966 : 91.

Charaxes pondoensis van Someren **stat. n.**

Charaxes ethalion pondoensis van Someren, 1967 : 285.

Charaxes phaeus Hewitson **stat. rev.**

Charaxes phaeus Hewitson, 1877 : 82.
Charaxes viola phaeus Hewitson; van Someren, 1969 : 136.

Charaxes vansoni van Someren **sp. n.**

Charaxes viola phaeus ♀ f. *vansoni* van Someren & Jackson, 1957 : 43.
Charaxes viola phaeus ♀ f. *vansoni* van Someren & Jackson; van Someren, 1969 : 137.

Charaxes variata van Someren **stat. n.**

Charaxes viola variata van Someren, 1969 : 144.

Charaxes loandae van Someren **stat. n.**

Charaxes viola loandae van Someren, 1969 : 144.

Charaxes brainei van Son **stat. n.**

Charaxes viola brainei van Son, 1966 : 3.
Charaxes viola brainei van Son ; van Someren, 1969 : 147.

SOME REPLACEMENT NAMES AND ADDITIONAL INFORMATION ON CERTAIN TAXA

Charaxes hansali kulalae **nom. n.**

Charaxes hansalii kulalensis van Someren, 1971 : 192.

The name *kulalae* is proposed to replace the name *kulalensis* van Someren in the combination *Charaxes hansalii kulalensis* van Someren, 1971 (Part VII), which is a junior primary homonym of *kulalensis* van Someren in the combination *Charaxes acuminatus kulalensis* van Someren, 1963 (Part I : 217).

Charaxes jahlusa kigomaensis **nom. n.**

Charaxes jahlusa kigoma van Someren, 1974 : 423.

The name *kigomaensis* is proposed to replace the name *kigoma* van Someren in the combination *Charaxes jahlusa kigoma* van Someren, 1974 (Part IX), which is a junior primary homonym of *kigoma* van Someren in the combination *Charaxes smaragdalis kigoma* van Someren, 1964 (Part II : 219).

Charaxes anticlea suna **nom. n.**

Charaxes anticlea reducta van Someren, 1971 : 214.

The name *suna* is proposed to replace the name *reducta* van Someren in the combination *Charaxes anticlea reducta* van Someren, 1971 (Part VII) which is a junior primary homonym of *reducta* Rothschild in the combination *Charaxes xiphares reducta* Rothschild, 1929 (Part II : 189).

Charaxes ethalion nyasicus nom. n.

Charaxes ethalion nyasana van Someren 1967 : 286.

The name *nyasicus* is proposed to replace the name *nyasana* van Someren in the combination *Charaxes ethalion nyasana* van Someren, 1967 (Part IV) which is a junior primary homonym of *nyasana* Butler in the combination *Charaxes nyasana* Butler, 1895 (Part VII : 206).

Comparatively recent examination (May, 1967) of additional material indicates that this subspecies extends into S. W. Katanga (see Part IV : 300, Group 3, Region 2).

Charaxes dilutus miotoni nom. n.

Charaxes dilutus ngonga van Someren, 1974 : 442.

The name *miotoni* nom. n. is proposed to replace the name *ngonga* van Someren in the combination *Charaxes dilutus ngonga* van Someren, 1974 (Part IX), which is a potential junior primary homonym of *ngonga* van Someren in the combination *Charaxes berkeleyi* van Someren & Jackson ♀ form *ngonga* van Someren 1969 (Part V : 80).

Charaxes thysi Capronnier

Charaxes thysii Capronnier; van Someren, 1972 : 221.

Apparently, according to Dr A. H. B. Rydon (personal communication), there is a female specimen of this species in the Musée Royal de l'Afrique Centrale, Tervuren, Belgium.

Charaxes ludovici Rousseau-Decelle

Charaxes ludovici Rousseau-Decelle, 1933 : 271.

Mr Howarth has drawn my attention to the confusion regarding this name, which was based on a specimen from Lake Nyassa. Stichel (1939 : 452) placed this taxon as a subspecies of *Charaxes imperialis* Butler, and in Part VIII (p. 227) I wrongly assigned to this combination specimens taken by C. B. Cottrell at Mwinilunga, Zambia. Later in the same part (p. 262) I correctly placed the true *ludovici* from Lake Nyassa as a subspecies of *Charaxes xiphares*. The specimens taken by Cottrell in Zambia thus require a new name, as follows.

Charaxes imperialis lisomboensis subsp. n.

[*Charaxes imperialis ludovici* Rousseau-Decelle; van Someren, 1972 : 227. Misidentification.]

The name *lisomboensis* is proposed for the subspecies I misidentified in Part VIII as *Charaxes imperialis ludovici* Rousseau-Decelle.

The male and female specimens described and figured in 1972 are here designated the holotype and allotype respectively. It should be noted that the remarks made on p. 229 lines 14 and 15 about these specimens being atypical should be deleted and also the reference to Malawi on line 16 (see Corrigenda).

Holotype ♂, ZAMBIA: Mwinilunga, Lisombo River (*C. B. Cottrell*).

Allotype ♀, same data as holotype. Types in C. B. Cottrell collection to be deposited in BMNH.

RANGE. Zambia.

Charaxes superbus Schultze

Charaxes superbus Schultze; Plantrou, 1965 : 30 [♀].
Charaxes superbus Schultze; van Someren 1974 : 436.

When dealing with this species the reference to the description of the female by Monsieur J. Plantrou was unfortunately omitted.

Charaxes lydiae Holland

Charaxes lydiae Holland, 1917 : 18.
Charaxes lydiae Holland; Darge, 1973*a* : 51.
Charaxes lydiae Holland; van Someren, 1974 : 481.

Since writing Part 9 of these *Revisional Notes* Monsieur P. Darge has given an account of the discovery of this hitherto very rare species at Yaoundé, Cameroun in sufficient numbers to enable him to describe the variation within the species.

Charaxes eudoxus musakensis Darge

Charaxes eudoxus musakensis Darge, 1973*b* : 29.

This interesting subspecies has been described from Mt Cameroun in the Cameroun.

Charaxes richelmanni Röber

Charaxes richelmanni Röber; van Someren, 1970 : 236.
Charaxes richelmanni Röber; Darge, 1973*b* : 26 [♀].

Since this species was dealt with by me in 1970 the female has been described by Monsieur P. Darge from Mt Kala, Cameroun.

SYNOPTIC LIST OF AFRICAN *CHARAXES*, *EUXANTHE* AND *PALLA*

As the final sequence given below differs from the sequence in earlier parts (see p. 94), references are given in square brackets to the part number (Roman) and page numbers where each species is dealt with in the text.

CHARAXINAE Doherty

CHARAXES Ochsenheimer

Subgenus ***STONEHAMIA*** Cowan*

varanes-group
- 1. ***varanes*** (Cramer) [IX : 476]
  - ***v. varanes*** (Cramer)
    - *austrinus* Rothschild
  - ***v. vologeses*** (Mabille)
    - *brachycauda* Le Cerf
  - ***v. bertrami*** Riley
  - ***v. defulvata*** Joicey & Talbot
- 2. ***fulvescens*** (Aurivillius) [I : 210]
  - ***f. fulvescens*** (Aurivillius)
  - ***f. monitor*** Rothschild
  - ***f. saperanus*** Poulton [not examined]
  - ***f. senegala*** van Someren
- 3. ***acuminatus*** Thurau [I : 211, V : 77]
  - ***a. acuminatus*** Thurau
  - ***a. vumba*** van Someren
  - ***a. mlanje*** van Someren
  - ***a. cottrelli*** van Someren
  - ***a. nyika*** van Someren
  - ***a. usambarensis*** van Someren
  - ***a. shimbanus*** van Someren
  - ***a. teitensis*** van Someren
  - ***a. oreas*** Talbot
  - ***a. kulalensis*** van Someren
  - ***a. stonehami*** Jeffery
  - ***a. kigezia*** van Someren
  - ***a. obudoensis*** van Someren
- 4. ***balfouri*** Butler [Not dealt with]
- 5. ***analava*** Ward [IX : 472]

Subgenus ***CHARAXES*** Ochsenheimer

candiope-group
- 6. ***candiope*** (Godart) [IX : 467]
  - ***c. candiope*** (Godart)
    - *viridicostatus* Aurivillius
  - ***c. velox*** Grant
  - ***c. thomasius*** Staudinger & Schatz
- 7. ***antamboulou*** Lucas [IX : 472]
- 8. ***cowani*** Butler [IX : 471]

cynthia-group
- 9. ***protoclea*** Feisthamel [VII : 202]
  - ***p. protoclea*** Feisthamel
    - *aeson* Herrich-Schäffer
  - ***p. protonothodes*** van Someren
    - var. *ablutus* Schultze
    - var. *maculata* Strand
    - var. *marginepunctata* Holland
    - var. *nigropunctata* Neustetter
    - var. *sinuosa* Rousseau-Decelle
  - ***p. nothodes*** Jordan
  - ***p. catenaria*** Rousseau-Decelle
    - var. *bifida* Rousseau-Decelle
    - var. *kafakumbana* Rousseau-Decelle
    - var. *parcepicta* Rousseau-Decelle
    - var. *mutschatschana* Rousseau-Decelle
  - ***p. azota*** (Hewitson)
    - *calliclea* Smith
    - *nyasana* Butler
    - f. *aequidistans* Gaede
- 10. ***boueti*** Feisthamel [VI : 224]
  - ***b. boueti*** Feisthamel
  - ***b. ghanaensis*** Rousseau-Decelle & Johnson
  - ***b. macclouni*** Butler
    - *flavescens* Lanz
  - ***b. rectans*** Rothschild & Jordan
  - ***b. alticola*** Grunberg
- 11. ***lasti*** Grose-Smith [VI : 232]
  - *centralis* Neustetter
- 12. ***cynthia*** Butler [V : 150]
  - ***c. cynthia*** Butler
    - *lysianassa* Westwood
    - *guineensis* Le Moult
  - ***c. cameroonensis*** van Someren
    - f. *albofascia* Le Cerf
    - ab. *cizeyi* Lathy
    - f. *angusticlavius* Rousseau-Decelle
  - ***c. kinduana*** Le Cerf
    - *mawamba* Grunberg
  - ***c. propinqua*** van Someren
  - ***c. parvicaudatus*** Lathy

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* The compact group *varanes-fulvescens-acuminatus*, usually placed in the genus *Charaxes*, was separated off by Stoneham under the name *Hadrodontes* but, as Cowan (1968) points out, the name is unavailable because no type-species was designated as required by Article 13 (b) of the *Code*. Cowan proposed *Stonehamia* as an alternative name, citing *Papilio varanes* Cramer as the type-species; the name can be used as a subgenus.

c. sabulosus Talbot
f. *aurantiaca* Rousseau-Decelle
c. mukuyu van Someren
lucretius-group
13. ***lucretius*** (Cramer) [VII : 194]
l. lucretius (Cramer)
lucida Le Cerf
l. intermedius van Someren
albofascia Le Cerf
caliginosa Le Cerf
l. maximus van Someren
babingtoni Stoneham
l. lemosi Joicey & Talbot
14. ***octavus*** Minig [X : 103]
patergodarti Neidhoefer
15. ***odysseus*** Staudinger [VII : 199]
16. ***lactetinctus*** Karsch [VIII : 232, IX : 483]
l. lactetinctus Karsch
l. busogus van Someren
f. *jacksonianus* van Someren
l. ungemachi Le Cerf
f. *brunneus* Carpenter
jasius-group
17. ***jasius*** (Linnaeus) [I : 201]
j. jasius (Linnaeus)
j. epijasius Reiche
var. *maculatus* Suffert
ab. *murina* Le Cerf
ab. *feisthameli* Le Cerf
var. *melas* van Someren
f. *liberiae* Le Cerf
j. harrisoni Sharpe
f. *harrisoni* Sharpe
f. *saturnalis* van Someren
j. pagenstecheri Poulton
j. saturnus Butler
var. *laticinctus* Butler
j. brunnescens Poulton
18. ***pelias*** (Cramer) [I : 205]
19. ***hansali*** Felder [VII : 190]
h. hansali Felder
h. baringana Rothschild
h. kulalae van Someren
kulalensis van Someren
h. arabica Riley
20. ***castor*** (Cramer) [VII : 184]
c. castor (Cramer)
ab. *aginga* Stoneham
ab. *antiqua* Le Cerf
ab. *flavimarginalis* Stoneham
c. flavifasciatus Butler
orientalis Lanz
var. *reimeri* Rothschild
c. arthuri van Someren
c. comoranus Rothschild
21. ***brutus*** (Cramer) [VI : 214]
b. brutus (Cramer)
b. angustus Rothschild
b. junius Oberthür
b. somalicus Rothschild
b. alcyone Stoneham
b. natalensis Staudinger & Schatz
b. antiquus Joicey & Talbot
22. ***andara*** Ward [VI : 221]
23. ***ansorgei*** Rothschild [IV : 303]
a. ansorgei Rothschild
a. jacksoni Poulton
a. ruandana Talbot
a. kungwensis van Someren
a. levicki Poulton
a. kilimanjarica van Someren
a. rydoni van Someren
24. ***phoebus*** Butler [VI : 212]
25. ***pollux*** (Cramer) [IV : 311]
p. pollux (Cramer)
ab. *subalbescens* Hall
var. *ongeus* Stoneham
var. *bungense* Stoneham
p. geminus Rothschild
zingense Stoneham
p. maua van Someren
p. gazanus van Someren
26. ***druceanus*** Butler [I : 228]
d. druceanus Butler
d. tectonis Rothschild
d. obscura Rebel
kivuanus Jordan
cryanae Le Cerf
d. septentrionalis Lathy
var. *alicea* Stoneham
var. *lugari* van Someren
d. teita van Someren
d. proximans Joicey & Talbot
d. stevensoni van Someren
d. entabeni van Someren
d. moerens Jordan
d. cinadon Hewitson
27. ***phraortes*** Doubleday [IX : 473]
28. ***andranodorus*** Mabille [IX : 474]
29. ***eudoxus*** (Drury) [VI : 238, X : 110]
e. eudoxus (Drury)
e. mechowi Rothschild
e. theresae Le Cerf
e. katerae Carpenter
e. cabacus Jordan
e. amaurus Poulton
f. *nzoia* van Someren

e. lucyae van Someren
e. zambiae van Someren
30. ***richelmanni*** Röber [VI : 236]
tiridates-group
31. ***violetta*** Grose-Smith [III : 50]
v. violetta Grose-Smith
melloni Fox
v. maritima van Someren
v. meru van Someren
32. ***numenes*** (Hewitson) [VIII : 241]
n. numenes (Hewitson)
n. intermediate cline
f. *laticatena* Le Cerf
n. aequatorialis van Someren
f. *obsolescens* Stoneham
n. neumanni Rothschild
33. ***fuscus*** Plantrou [VIII : 240]
34. ***tiridates*** (Cramer) [VIII : 235]
t. tiridates (Cramer)
marica (Fabricius)
t. intermediate cline
var. *tristis* Schultze
var. *angusticaudatus* Röber
var. *purpurina* Rousseau-Decelle
var. *subcaerulea* Storace
t. tiridatinus Röber
ab. *conjuncta* Storace
t. marginatus Rothschild
35. ***bipunctatus*** Rothschild [VIII : 246]
b. bipunctatus Rothschild
johnsoni Rousseau-Decelle
b. intermediate cline
b. ugandensis van Someren
36. ***mixtus*** Rothschild [VIII : 250]
37. ***bubastis*** Schultze [VIII : 251]
38. ***albimaculatus*** van Someren [VIII : 252]
39. ***barnsi*** Joicey & Talbot [VIII : 253]
40. ***bohemani*** Felder [VII : 208]
41. ***schoutedeni*** Ghesquiére [II : 220, V : 79]
42. ***montieri*** Staudinger [VII : 200]
43. ***overlaeti*** Schouteden [Not dealt with in text but of doubtful affinity.]
44. ***smaragdalis*** Butler [II : 207]
s. smaragdalis Butler
f. *beni* van Someren
s. butleri Rothschild
s. leopoldi Ghesquière
s. metu van Someren
s. caerulea Carpenter & Jackson
s. toro van Someren
s. kagera van Someren
s. elgonae van Someren
s. homonymus Bryk
orientalis Joicey & Talbot
s. kigoma van Someren
45. ***xiphares*** (Cramer) [II : 188, V : 82, VIII : 259]
x. xiphares (Cramer)
f. *occidentalis* van Son
x. thyestes (Stoll)
reducta Rothschild
elatias Jordan
x. penningtoni van Son
♀ f. *luminosa* van Son
x. draconis Jordan
♀ f. *candida* van Son
x. kenwayi Poulton
♀ f. *lutea* van Son
x. bavenda van Son
♀ f. *ochreomacula* van Son
♀ f. *cyanescens* van Son
x. vumbui van Son
x. woodi van Someren
x. brevicaudatus Schultze
x. burgessi van Son
x. maudei Joicey & Talbot
x. kulal van Someren
x. desmondi van Someren
x. wernickei Joicey & Talbot
x. kilimensis van Someren
x. ludovici Rousseau-Decelle [X : 109]
46*. ***nandina*** Rothschild & Jordan [II : 203]
47. ***imperialis*** Butler [VIII : 223]
i. imperialis Butler
i. albipunctus Joicey & Talbot
i. paulianus Rousseau-Decelle
i. ugandicus van Someren
f. *caerulipunctus* van Someren
i. lisomboensis van Someren
[*ludovici* Rousseau-Decelle sensu van Someren]
48. ***ameliae*** Doumet [VIII : 228]
a. ameliae Doumet
regius Aurivillius
a. victoriae van Someren
a. amelina Joicey & Talbot
49. ***pythodoris*** Hewitson [I : 222, X : 105]
p. pythodoris Hewitson
p. occidens van Someren
p. nesaea Grose-Smith
p. pallida Carpenter
p. davidi Plantrou
hadrianus-group
50. ***hadrianus*** Ward [VIII : 221]

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* See p. 127 for *cithaeron* Felder, inadvertently omitted from this Synoptic List.

- ***h. hadrianus*** Ward
  - *dux* Staudinger & Schatz
  - *gabonica* Crowley
- ***h. lecerfi*** Lathy

nobilis-group

- 51. ***nobilis*** Druce [IX : 433]
  - ***n. nobilis*** Druce
    - *agabo* Distant
    - *homerus* Staudinger
  - ***n. rosemariae*** Rousseau-Decelle
  - ***n. claudei*** Le Moult
- 52. ***superbus*** Schultze [IX : 436]
- 53. ***acraeoides*** Druce [IX : 429]
- 54. ***fournierae*** Le Cerf
  - ***f. fournierae*** Le Cerf
  - ***f. kigeziensis*** Howarth
- 55. ***lydiae*** Holland [IX : 481]

zoolina-group

- 56. ***kahldeni*** Homeyer & Dewitz [IX : 450]
  - *apicalis* Röber
  - f. *homeyeri* Homeyer & Dewitz
  - f. *bellus* Niepelt
- 57. ***zoolina*** (Westwood) [IX : 444]
  - ***z. zoolina*** (Westwood)
    - f. *neanthes* (Hewitson)
    - f. *homochrous* Le Cerf
    - f. *obscuratus* Suffert
  - ***z. mafugensis*** Jackson
  - ***z. ehmckei*** Homeyer & Dewitz
    - f. *phanera* Jordan
  - ***z. betsimisaraka*** Lucas
    - *relatus* Butler
    - *firmus* Le Cerf
    - f. *betanimena* Lucas
    - *andriba* Ward
    - *freyi* (Branczik)
    - *lambertoni* Lathy

eupale-group

- 58. ***eupale*** (Drury) [IX : 438]
  - ***e. eupale*** (Drury)
    - *amasia* (Fabricius)
  - ***e. latimargo*** Joicey & Talbot
    - *schultzi* Röber
- 59. ***subornatus*** Schultze [IX : 440]
  - ***s. subornatus*** Schultze
  - ***s. minor*** Joicey & Talbot
- 60. ***dilutus*** Rothschild [IX : 441]
  - ***d. dilutus*** Rothschild
  - ***d. miotoni*** van Someren
    - *ngonga* van Someren
- 61. ***montis*** Jackson [IX : 442]

jahlusa-group

- 62. ***jahlusa*** (Trimen) [IX : 418]
  - ***j. jahlusa*** (Trimen)
  - ***j. argynnides*** Westwood
  - ***j. kigomaensis*** van Someren
    - *kigoma* van Someren
  - ***j. kenyensis*** Joicey & Talbot
    - f. *pallene* van Someren
    - f. transitional to ***ganalensis***
  - ***j. ganalensis*** Carpenter

pleione-group

- 63. ***pleione*** (Godart) [IX : 427]
  - ***p. pleione*** (Godart)
    - *lichas* (Doubleday)
    - f. *othello* Suffert
    - f. *pallida* Lathy
  - ***p. bebra*** Rothschild
- 64. ***paphianus*** Ward [IX : 425]
  - ***p. paphianus*** Ward
    - *falcata* (Butler)
    - *hamulosa* (Weymer)
  - ***p. subpallida*** Joicey & Talbot

zingha-group

- 65. ***zingha*** (Stoll) [IX : 466]
  - *berenice* (Drury)

etesipe-group

- 66. ***etesipe*** (Godart) [III : 59]
  - ***e. etesipe*** (Godart)
    - *etheta* (Godart)
    - ♀ f. *castoroides* Poulton
    - ♀ f. *caeruleotincta* Carpenter
  - ***e. abyssinicus*** Rothschild
  - ***e. patrizii*** Storace
  - ***e. tavetensis*** Rothschild
  - ***e. gordoni*** van Someren
  - ***e. pemba*** van Someren
- 67. ***penricei*** Rothschild [III : 65, V : 80]
  - ***p. penricei*** Rothschild
    - ab. *peculiaris* Lathy
    - ab. *flavus* Lathy
  - ***p. dealbata*** Joicey & Talbot
  - ***p. tanganyikae*** van Someren
    - ♀ f. *caerulescens* van Someren
- 68. ***cacuthis*** Hewitson [III : 68]
- 69. ***paradoxa*** Lathy [III : 67]
- 70. ***achaemenes*** Felder [VI : 207]
  - ***a. achaemenes*** Felder
    - f. *fasciatus* Suffert
  - ***a. monticola*** Joicey & Talbot
    - f. *erythraea* Storace
  - ***a.*** cline ***monticola*** x ***atlantica***
  - ***a. atlantica*** van Someren
    - *jocaste* Butler

etheocles-group

- 71. ***anticlea*** (Drury) [VII : 209]
  - ***a. anticlea*** (Drury)
    - *horatius* (Fabricius)

  a. proadusta van Someren
  a. cline ***proadusta*** x ***adusta***
  a. adusta Rothschild
  a. suna van Someren
    reducta van Someren
72. ***baumanni*** Rogenhofer [VII : 217, IX : 482]
  b. baumanni Rogenhofer
  b. tenuis van Someren
  b. interposita van Someren
  b. bwamba van Someren
  b. didingensis van Someren
  b. whytei Butler
    selous Trimen
  b. bamptoni van Someren
73. ***opinatus*** Heron [VI : 202]
74. ***thysi*** Capronnier [VIII : 219]
75. ***hildebrandti*** Dewitz [VIII : 218] [X : 105]
  h. hildebrandti Dewitz
    talagugae Holland
    galba Distant
  h. gillesi Plantrou
  h. katangensis Talbot
76. ***blanda*** Rothschild [VI : 205]
  b. blanda Rothschild
  b. kenyae Poulton
77. ***kheili*** Staudinger [V : 94]
78. ***northcotti*** Rothschild [V : 96]
79. ***guderiana*** (Dewitz) [VI : 199]
  g. guderiana (Dewitz)
    tanganika Robbe
  g. rabaiensis Poulton
80. ***pembanus*** Jordan [III : 70]
81. ***usambarae*** van Someren & Jackson [III : 73]
    f. *collinsi* van Someren
82. ***contrarius*** Weymer [V : 119]
    subargentea van Someren & Rogers
    f. *conjugens* van Someren
83. ***petersi*** van Someren [V : 121]
84. ***marieps*** van Someren & Jackson [III : 80]
85. ***karkloof*** van Someren [III : 81]
  k. karkloof van Someren
  k. capensis van Someren
86. ***martini*** van Someren [III : 96, IX : 483]
87. ***gallagheri*** van Son [III : 94]
88. ***alpinus*** van Someren & Jackson [III : 84]
89. ***nyikensis*** van Someren [X : 107]
90. ***maccleeryi*** van Someren [VIII : 257]
91. ***grahamei*** van Someren [V : 115]
    ♀ f. *lacteata* van Someren
92. ***aubyni*** van Someren & Jackson [III : 77]
  a. aubyni van Someren & Jackson
  a. ecketti van Someren & Jackson
  a. australis van Someren & Jackson
93. ***chepalungu*** van Someren [V : 90]
94. ***virilis*** Rothschild [V : 92]
    lenis Jordan
95. ***fulgurata*** Aurivillius [III : 92]
    ♀ f. *lunigera* Rothschild & Jordan
    ♀ f. *mima* Riley
96. ***berkeleyi*** van Someren & Jackson [V : 80]
  b. berkeleyi van Someren & Jackson
    ♀ f. *ngonga* van Someren
  b. masaba van Someren
97. ***baileyi*** van Someren [V : 122]
    ♀ f. *pseudocarpenteri* van Someren
98. ***manica*** Trimen [III : 86, VIII : 255]
  m. manica Trimen
  m. subrubidus van Someren
    ♀ f. *atribasis* van Someren
    ♀ f. *aubergeri* van Someren
    ♀ f. *pseudosmaragdalis* van Someren & Jackson
99. ***pseudophaeus*** van Someren [X : 107]
100. ***chintechi*** van Someren [X : 107]
101. ***protomanica*** van Someren [X : 107]
102. ***ethalion*** (Boisduval) [IV : 281]
  Group 1.
  e. ethalion (Boisduval)
    ♀ f. *ethalion* (Boisduval)
    ♀ f. *swynnertoni* Poulton
    ♀ f. *rosae* Butler
    ♀ f. *aurantimacula* van Someren
  Group 2. See No. 103 *pondoensis*
  Group 3.
  e. nyasicus van Someren
    nyasana van Someren
    ♀ f. *nyasicus* van Someren
    nyasana van Someren
    ♀ f. *swynnertoni* pattern
    ♀ f. *cithaeronoides* van Someren
    ♀ f. *suppressa* van Someren
    ♀ f. *demaculata* van Someren
    ♀ f. *imitans* van Someren
  Group 4.
  e. nyanzae van Someren
  Region 1
    ♀ f. *ethalion* pattern
    ♀ f. *howardi* van Someren & Jackson

Region 2
♀ f. *ethalion* pattern
Region 3
♀ f. *ethalion* pattern
♀ f. *rosae* pattern
Region 4
♀ f. *ethalion* pattern
Group 5.
e. littoralis van Someren
Region 1
♀ f. *ethalion* pattern
♀ f. *rosae* pattern
Region 2
♀ f. *ethalion* pattern
♀ f. *rosae* pattern
♀ f. *swynnertoni* pattern
e. intergrading cline between Groups 3 and 5
♀ f. *ethalion* pattern
♀ f. *rosae* pattern
♀ f. *swynnertoni* pattern
Group 6.
e. kikuyuensis van Someren
♀ f. *ethalion* pattern
♀ f. *rosae* pattern
♀ f. *swynnertoni* pattern
Group 7.
e. marsabitensis van Someren
♀ f. *swynnertoni* pattern
103. ***pondoensis*** van Someren [X : 108]
104. ***etheocles*** (Cramer) [V : 90]
Region 1
e. etheocles (Cramer)
♀ f. *etheocles* (Cramer)
♀ f. *alladinis* Butler
♀ f. *fulgens* Rothschild
♀ f. *regalis* Rothschild
♂ f. *ephyra* Godart
hollandi Butler
♂ f. *carteri* Butler
♂ f. *catochrous* Staudinger
Region 2
e. biinclinata van Someren
♀ f. *etheocles* pattern (two vars.]
♀ f. *ochracea* pattern
♀ f. *alladinis* pattern
♀ f. *regalis* pattern
♂ f. *ephyra* pattern
♂ f. *carteri* pattern
♂ f. *catochrous* pattern
Region 3
e. ochracea van Someren & Jackson
♀ f. *ochracea* Rothschild
♀ f. *ochreata* van Someren & Jackson (= *alladinis* × *regalis*)
♀ f. *seriata* Rothschild
♂ f. *violacea* Rothschild
Region 4
e. carpenteri van Someren & Jackson
f. *carpenteri* Poulton
♀ f. *carpenteri* Poulton and vars.
♀ f. *pallidimacula* van Someren & Jackson and vars.
♂ f. *carpenteri* van Someren & Jackson
♂ f. near *carteri* Butler
♂ f. near *catochrous* Staudinger
Region 5
e. evansi van Someren & Jackson
f. *evansi* van Someren & Rogers
♀ f. *evansi* van Someren & Jackson and vars.
♀ f. *conjuncta* van Someren & Jackson
♂ f. *evansi* van Someren & Jackson (near *carteri*) and vars.
105. ***viola*** Butler [V : 125]
v. viola Butler
v. picta van Someren & Jackson
♀ f. *vansomereni* Poulton
v. suk Carpenter & Jackson
♀ f. *kirkoides* Carpenter & Jackson
♀ f. *achaemenesopsis* Carpenter & Jackson
♀ f. *intermedia* Carpenter & Jackson
♀ f. *albifascia* Poulton
v. daria Rothschild
v. chanleri Holland
v. kirki Butler
♀ f. *kirki* Butler
♀ f. *albifascia* Poulton
♀ f. *rogersi* Poulton
♀ f. *handari* Poulton
v. diversiforma van Someren & Jackson
♀ f. *diversiforma* van Someren & Jackson
♀ f. *purpurea* van Someren & Jackson
♀ f. *viridicaerulea* van Someren & Jackson
♀ f. *caerulescens* van Someren & Jackson
♀ f. *albocaerulea* van Someren & Jackson

♀ f. *albimacula* van Someren & Jackson
♀ f. *ochremaculata* van Someren & Jackson
♀ f. *cupreopurpurea* van Someren & Jackson
v. fagini Storace
106. ***phaeus*** Hewitson [X : 108]
♀ f. *phaeus* Hewitson
♀ f. *corydoni* Rothschild
107. ***vansoni*** van Someren [X : 108]
♀ f. *vansoni* van Someren & Jackson
108. ***variata*** van Someren [X : 108]
♀ f. *variata* van Someren
♀ f. *tricolor* van Someren
♀ f. *rosella* van Someren
♀ f. *cottrelli* van Someren
109. ***loandae*** van Someren [X : 108]
♀ f. *loandae* van Someren
♀ f. *primitiva* van Someren
♀ f. *basiviridis* van Someren
♀ f. *violitincta* van Someren
♀ f. *vansonoides* van Someren
♀ f. *protokirki* van Someren
♀ f. *instabilis* van Someren
110. ***brainei*** van Son [X : 108]
111. ***cedreatis*** Hewitson [V : 85]
lutacea Rothschild
♀ f. *cedreatis* Hewitson
♀ f. *protocedreatis* Poulton
♀ f. *inexpectata* van Someren
♀ f. *vetula* Rothschild
♀ f. *pseudosmaragdalis* van Someren & Jackson
♀ f. *dewitzi* Butler
112. ***mafuga*** van Someren [V : 97, X : 106]
nichetes-group
113. ***nichetes*** Grose-Smith [IX : 463]
n. nichetes Grose-Smith
hamatus Dewitz
ogovensis Holland
n. leoninus Butler
n. pantherinus Rousseau-Decelle
laodice-group
114. ***laodice*** (Drury) [IX : 460]
nesiope (Hewitson)
lycurgus (Fabricius)
115. ***zelica*** Butler [IX : 457]
z. zelica Butler
z. depuncta Joicey & Talbot
z. toyoshimai Carcasson
116. ***porthos*** Grose-Smith [IX : 454]
p. porthos Grose-Smith
midas Staudinger
p. katangae Rousseau-Decelle
p. dummeri Joicey & Talbot
p. gallayi van Someren
117. ***dunkeli*** Röber [IX : 461]
118. ***doubledayi*** Aurivillius [IX : 454]
119. ***mycerina*** (Godart) [IX : 452]
nausicaa Staudinger

EUXANTHINAE Rydon

EUXANTHE Hübner

Subgenus ***EUXANTHE*** Hübner

1. ***eurinome*** (Cramer) [X: 79]
e. eurinome (Cramer)
♀ f. *johnsoni* Howarth
e. ansellica Butler
f. *burgeoni* Le Cerf
var. *radiata* van Someren & Rogers
e. celadon Le Cerf
e. elgonae van Someren
e. birbirica Ungemach
2. ***crossleyi*** (Ward) [X : 83]
c. crossleyi (Ward)
f. *niepelti* Bryk
c. ansorgei Rothschild & Jordan
f. *babbingtoni* Stoneham
c. magnifica Rebel
intermedia Joicey
c. claudiae Rousseau-Decelle
3. ***wakefieldi*** (Ward) [X : 85]
f. ***rubiginea*** Le Cerf
4. ***madagascariensis*** (Lucas) [X : 86]
amakosa (Boisduval)

Subgenus *HYPOMELAENA* Aurivillius

5. ***trajanus*** (Ward) [X : 87]
    - ***t. trajanus*** (Ward)
        - *schatzi* Staudinger
    - ***t. vansomereni*** Poulton
    - ***t. gabonicus*** Le Cerf
    - ***t. antonius*** Rousseau-Decelle
    - ***t. nigeriae*** van Someren
6. ***tiberius*** Grose-Smith [X : 90]
    - ***t. tiberius*** (Grose-Smith)
        - f. *tiberiella* Strand
    - ***t. meruensis*** van Someren

PALLINAE Rydon

PALLA Hübner

1. ***publius*** Staudinger [X : 75]
    - ***p. publius*** Staudinger
        - *rectifascia* Weymer
        - f. *rectifascia* Weymer
        - f. *moderata* Gaede
    - ***p. centralis*** van Someren
    - ***p. kigoma*** van Someren
2. ***ussheri*** (Butler) [X : 70]
    - ***u. ussheri*** (Butler)
        - ♀ f. *ferruginea* Schultze
        - ♀ f. *dobelli* Hall
    - ***u. interposita*** Joicey & Talbot
3. ***decius*** (Cramer) [X : 69]
    - f. *sagittarius* Rousseau-Decelle
4. ***violinitens*** (Crowley) [X : 73]
    - ***v. violinitens*** (Crowley)
    - ***v. coniger*** (Butler) cline
    - ***v. bwamba*** van Someren

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APPENDIX

The following entry was inadvertently omitted from p. 113 of the Synoptic List.

45a ***cithaeron*** Felder [II : 225, X : 105]
  c. ***cithaeron*** Felder
    ab. *whitei* van Someren
  c. ***joanae*** van Someren
  c. ***nyasae*** van Someren
    ab. *griseus* Schultze
  c. ***kennethi*** Poulton
  c. ***nairobicus*** van Son

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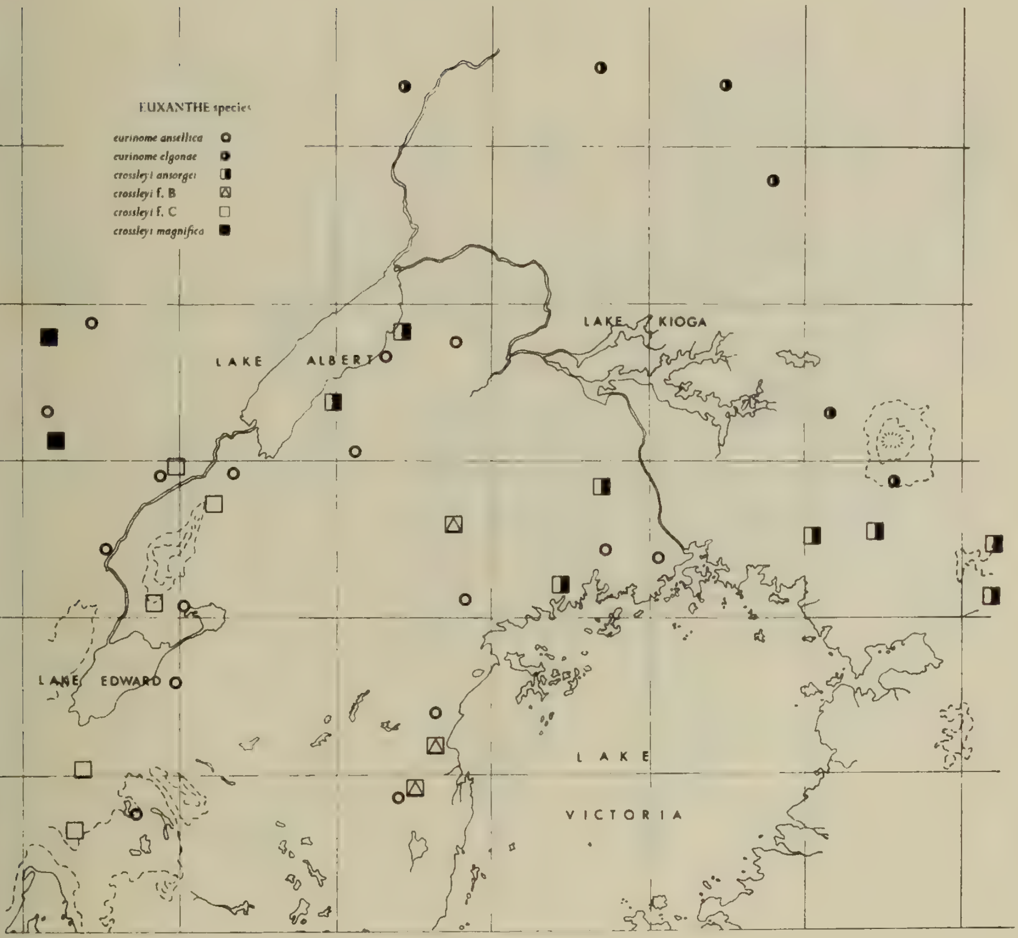
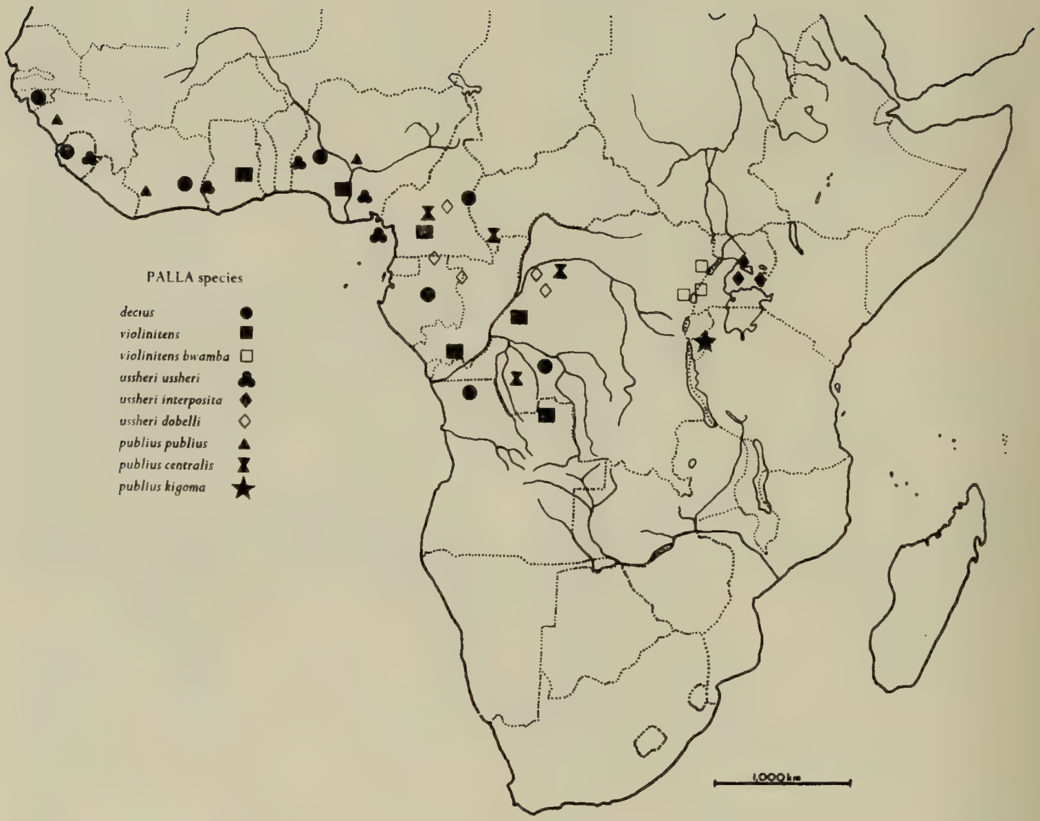
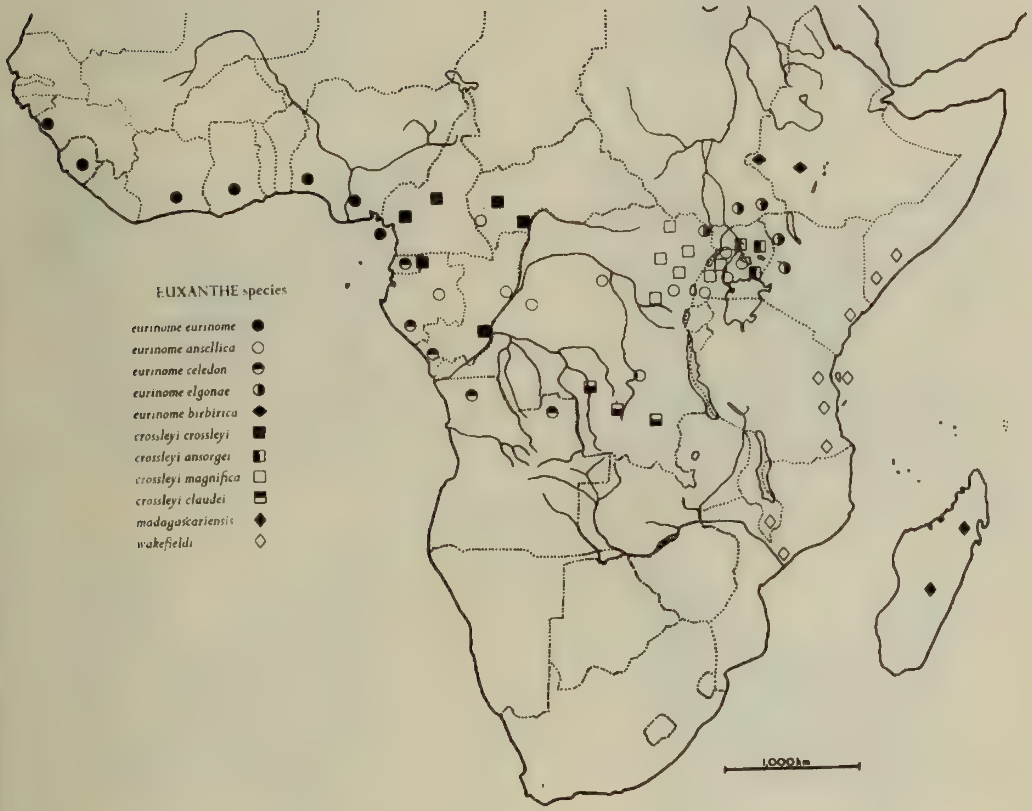
V. G. L. van Someren
The Sanctuary
Ngong
P. O. Box 24947
Karen
Kenya


EUXANTHE species
eurinome ansellica ○
eurinome elgonae ◐
crossleyi ansorgei ◧
crossleyi f. B ◬
crossleyi f. C □
crossleyi magnifica ■
LAKE KIOGA
LAKE ALBERT
LAKE EDWARD
LAKE VICTORIA

MAP 1.


PALLA species
decius ●
violinitens ■
violinitens bwamba □
ussheri ussheri ♣
ussheri interposita ◆
ussheri dobelli ◇
publius publius ▲
publius centralis ⧗
publius kigoma ★
1,000 km

Map 2.


EUXANTHE species
eurinome eurinome
eurinome ansellica
eurinome celedon
eurinome elgonae
eurinome birbirica
crossleyi crossleyi
crossleyi ansorgei
crossleyi magnifica
crossleyi claudei
madagascariensis
wakefieldi
1,000 km

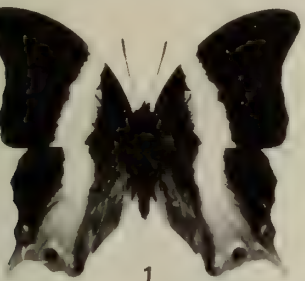
MAP 3.

PLATE 1

Palla

Upper and undersides

Figs 1, 2. *decius* (Cramer), ♂ (Sierra Leone: Port Lokko). Photos BMNH.
Figs 3, 4. *decius* (Cramer), ♀ (Sierra Leone). Photos BMNH.
Figs 5, 6. *ussheri ussheri* (Butler), ♂ Type (Gold Coast [Ghana]). Photos BMNH No 50108–9.
Fig. 7. *ussheri ussheri* (Butler), ♂ (Gold Coast [Ghana]).
Fig. 8. *ussheri ussheri* (Butler), ♀ (Ivory Coast).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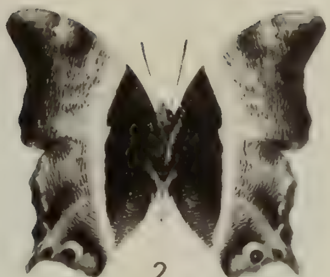
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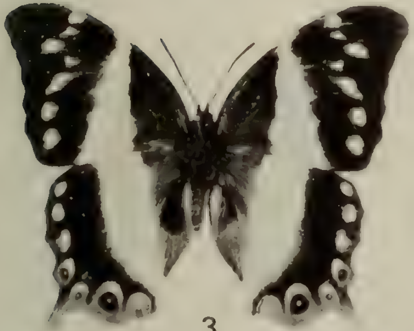
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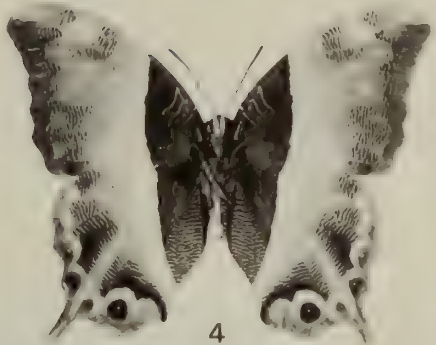
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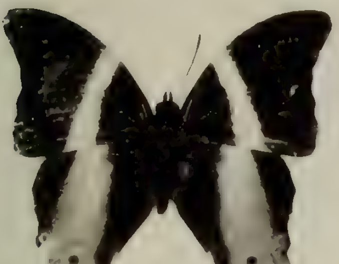
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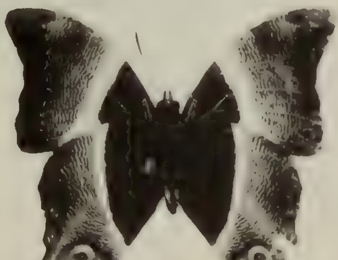
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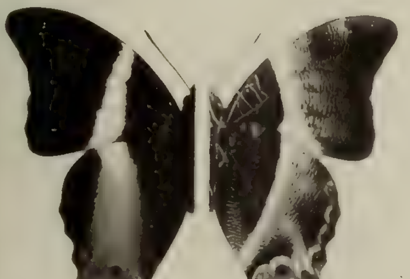
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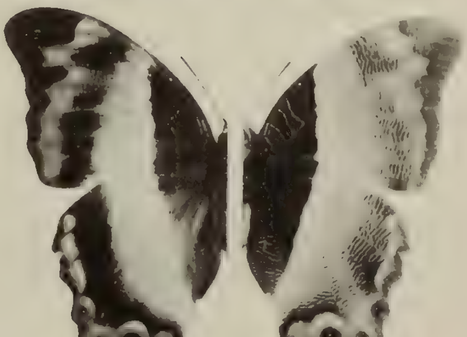
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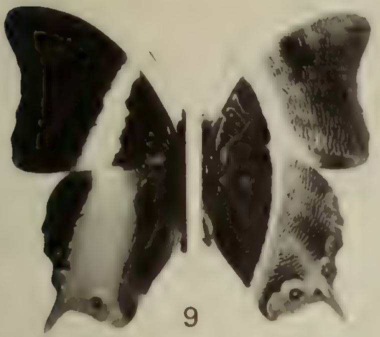
PLATE 2

Palla ussheri (Butler)

Upper & undersides

FIG. 9. *ussheri* ♂ (Togo).
FIG. 10. *ussheri* ♀ (Togo).
FIG. 11. *ussheri* ♂ form transitional to *interposita* Joicey & Talbot (East Congo: Epulu).
FIG. 12. *ussheri* ♀ form transitional to *interposita* Joicey & Talbot (East Congo: Epulu).
FIG. 13. *ussheri* ♀ intermediate form (East Congo : Epulu).
FIG. 14. *ussheri* ♀ dark var. (Moyen Congo [Congo: Brazzaville]).
FIG. 15. *ussheri* ♀ intermediate form (Moyen Congo [Congo: Brazzaville]).
FIG. 16. *ussheri* ♂ transitional to *interposita* Joicey & Talbot, resembling ♂ *interposita* of Uganda (East Congo : Beni).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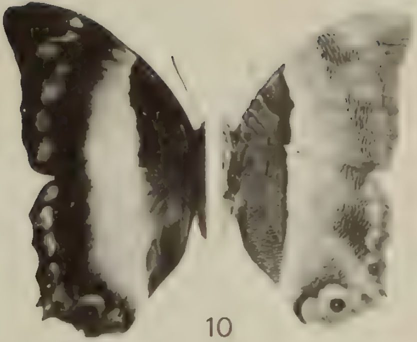
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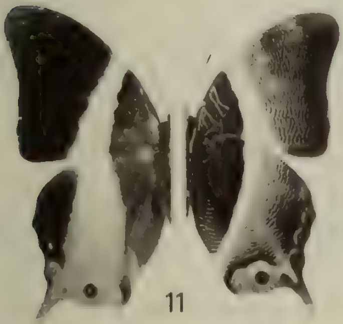
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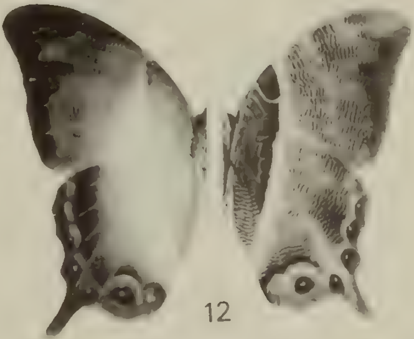
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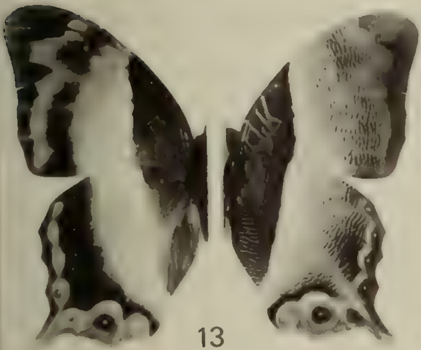
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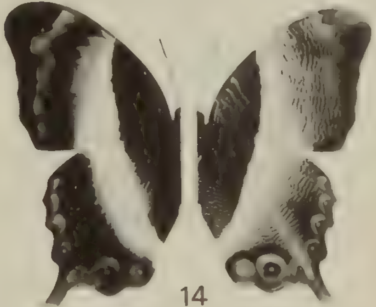
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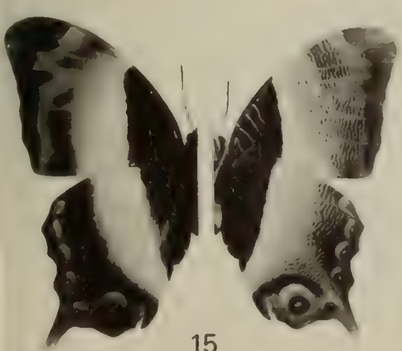
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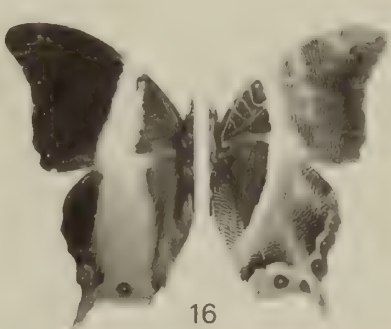
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PLATE 3

Palla ussheri (Butler)

Upper & undersides

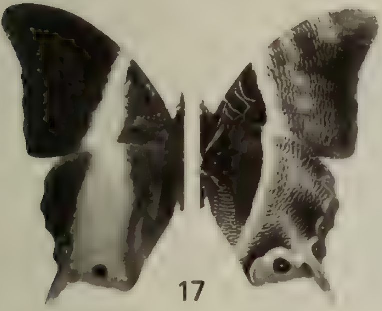
FIG. 17. *ussheri* ♂ transitional to *interposita* retaining facies of the more western ♂ (East Congo: Beni).

FIG. 18. *interposita* Joicey & Talbot, ♂ (East Uganda).

FIGS 19, 20. *ussheri* ♀ form *dobelli* Hall, Type (Cameroons [Cameroun]: Bitje, Ja River). Photos BMNH Nos 50114–5.

FIGS 21, 22. *interposita* Joicey & Talbot, ♂ Type (Uganda: Mabira Forest). Photos BMNH Nos 50110–1.

FIGS 23, 24. *interposita* Joicey & Talbot, ♀ (Uganda: Jinja). Photos BMNH Nos 50112–3.



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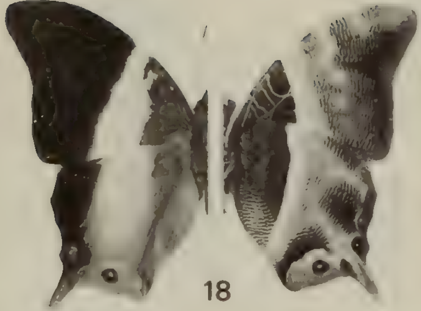

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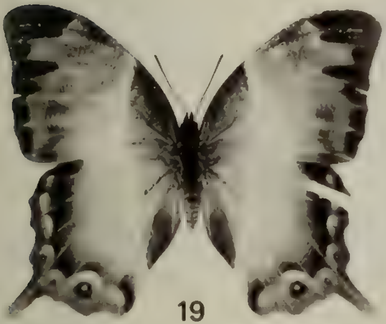

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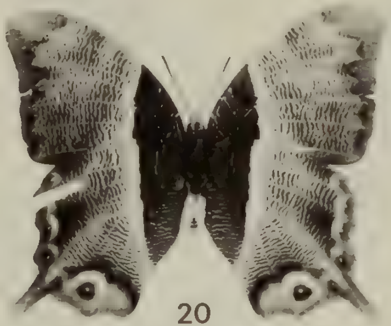

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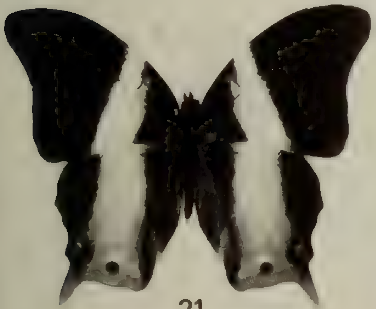

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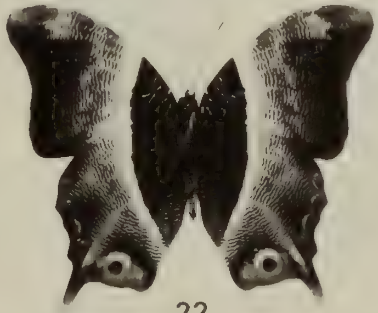

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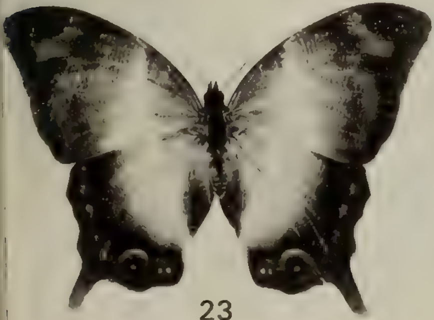

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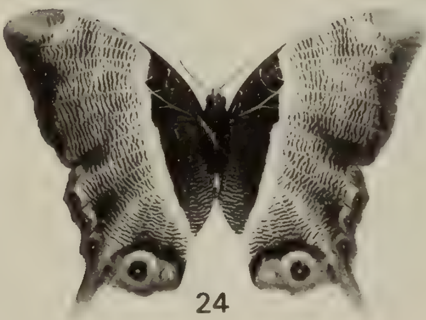

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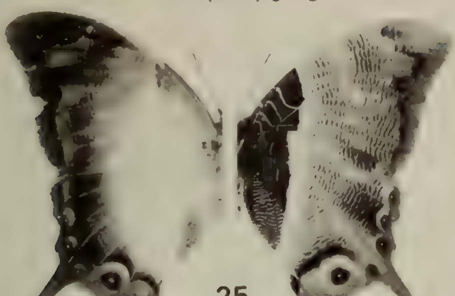
PLATE 4

Palla

Upper & undersides

FIG. 25. *ussheri interposita* Joicey & Talbot, ♀ (East Uganda).
FIG. 26. *violinitens violinitens* (Crowley), ♂ (Ivory Coast).
FIG. 27. *violinitens violinitens* (Crowley), ♀ (Ivory Coast).
FIG. 28. *violinitens* cline to *coniger* (Butler), ♂ (Congo: Kasai).
FIG. 29. *violinitens* cline to *coniger* (Butler), ♀ (Congo: Kasai).
FIG. 30. *violinitens* cline to *coniger* (Butler), ♀ (Central African Republic : Bangui) (*J. Plantrou*).
FIGS 31, 32. *violinitens* cline to *coniger* (Butler), ♀ (Moyen Congo [Congo: Brazzaville]) (Jackson coll.).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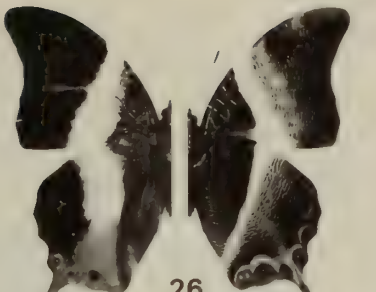
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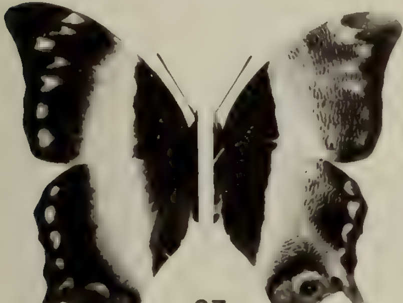
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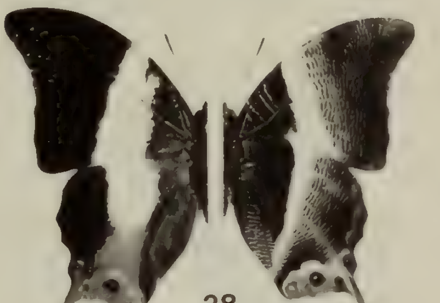
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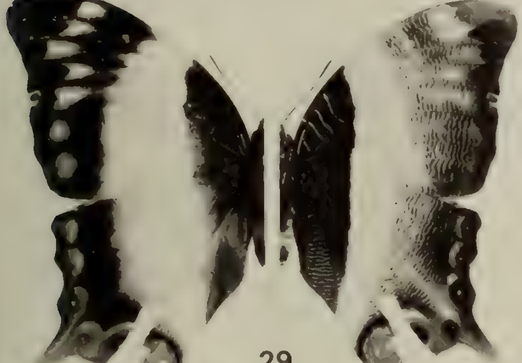
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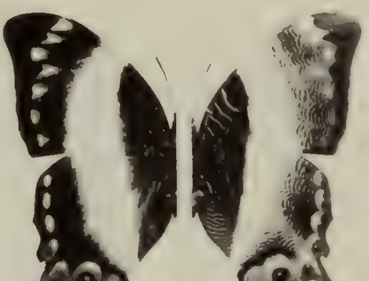
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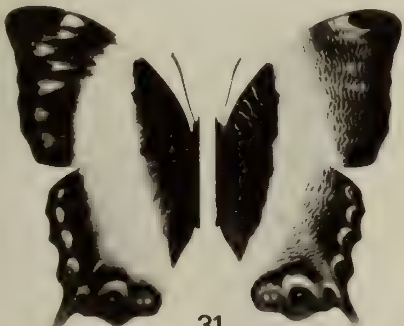
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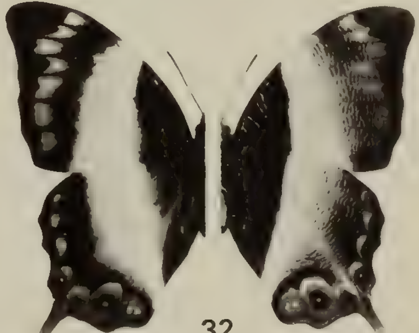
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PLATE 5

Palla

Upper & undersides

FIG. 33. *violinitens* cline to *coniger* (Butler), ♀ (Moyen Congo [Congo: Brazzaville]).

FIG. 34. *violinitens* ♂ transitional to *bwamba* subsp. n. (Eastern Congo: Epulu).

FIG. 35. *violinitens bwamba* subsp. n., ♂ holotype (W. Uganda: Bwamba Valley, v. 1954) (*van Someren*).

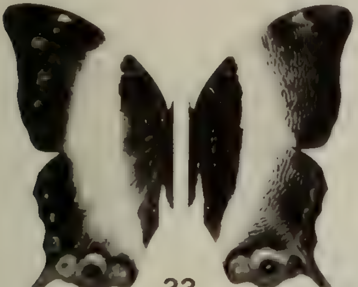
FIG. 36. *violinitens bwamba* subsp. n., ♂ paratype (W. Uganda: Bwamba Valley).

FIG. 37. *violinitens bwamba* subsp. n., ♀ allotype (W. Uganda: Bwamba Valley, vii. 1942) (*van Someren*).

FIG. 38. *publius publius* Staudinger, ♂ (Nigeria: Old Calabar).

FIG. 39. *publius publius* Staudinger, ♀ (Ghana: Juaso).

FIG. 40. *publius centralis* subsp. n., ♂ paratype (Moyen Congo [Congo: Brazzaville]) (Jackson coll.).



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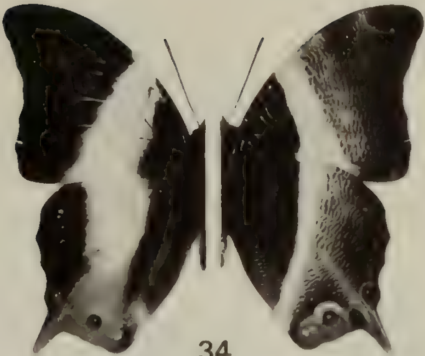

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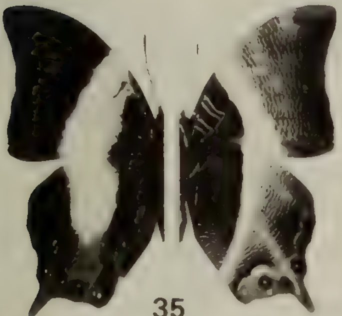

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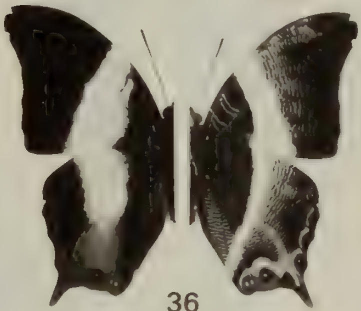

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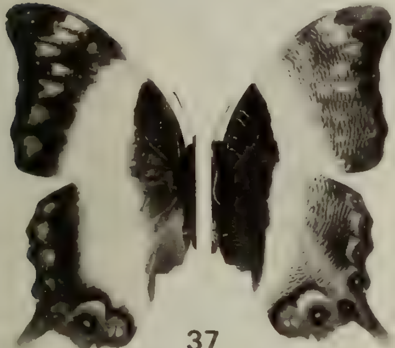

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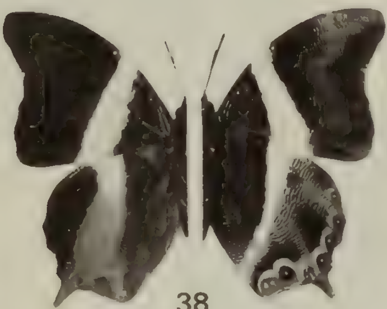

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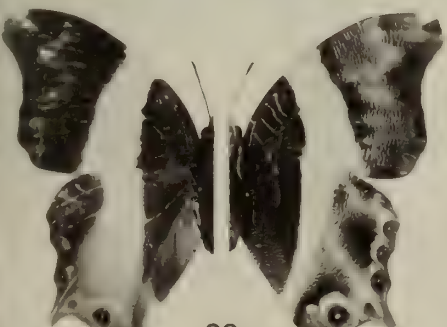

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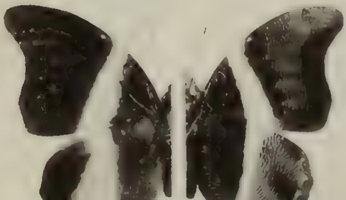


40

PLATE 6

Palla publius Staudinger

Upper & undersides

FIGS 41, 42. *centralis* subsp. n., ♂ holotype (Afriq. Occid: Station Kamerun).

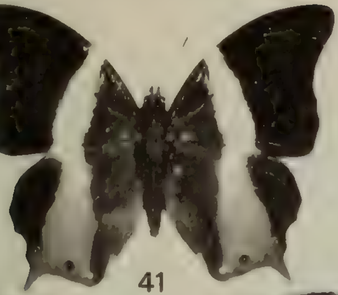
FIGS 43, 44. *centralis* subsp. n., ♀ allotype (Cameroun).

FIG. 45. *centralis* subsp. n., ♂ paratype (Moyen Congo [Congo: Brazzaville]) (Jackson coll.).

FIG. 46. *kigoma* subsp. n., ♂ holotype (Tanzania: Kigoma, Kabogo, 28.xi.1961) (*Japanese Primate Exped.*).

FIGS 47, 48. *kigoma* subsp. n., ♂ paratype (Tanzania: Kigoma, Kabogo, 28.xi.1961) (*Japanese Primate Exped.*).

FIGS 49, 50. *publius* f. *moderata* Gaede, ♂ (Congo: Kapulumbo, Kasai).



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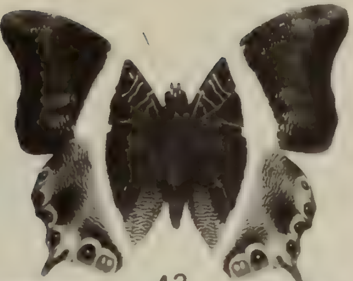

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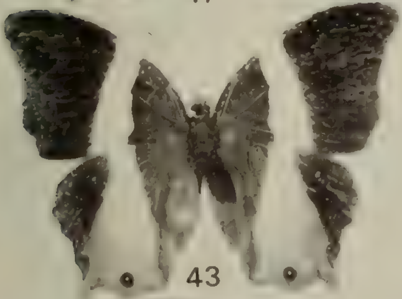

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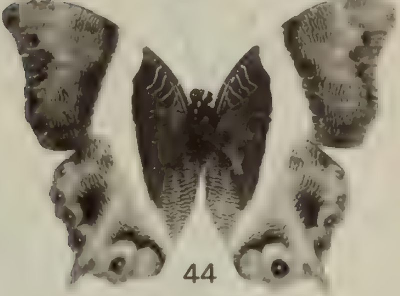

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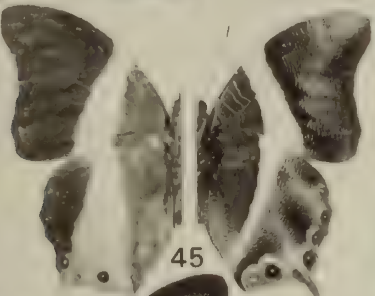

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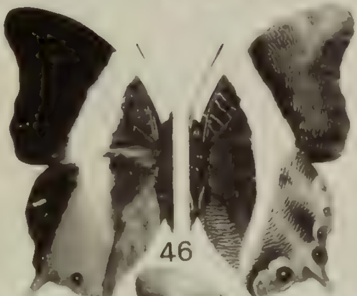

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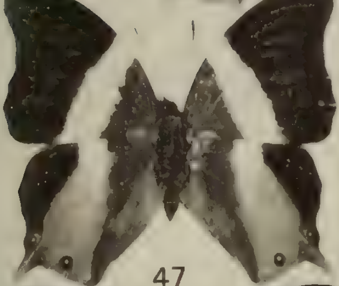

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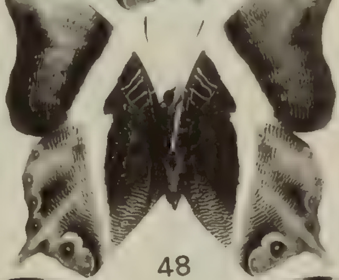

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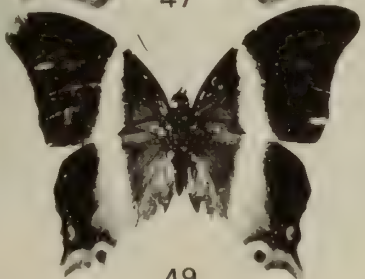

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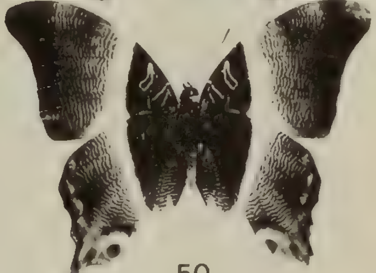


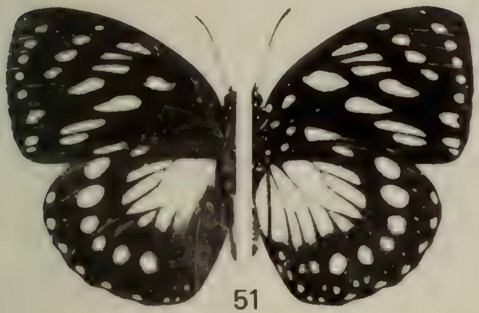
50

PLATE 7

Euxanthe eurinome (Cramer)

Upper & undersides

FIG. 51. ***eurinome***, ♂ (Sierra Leone).
FIG. 52. ***eurinome***, ♀ (Sierra Leone).
FIG. 53, 54. ***eurinome***, ♀ (Ivory Coast).
FIGS 55, 56. ***ansellica*** (Butler), ♂ type (Angola: Kinsembo). Photos BMNH Nos 51244–5.
FIG. 57. ***ansellica*** var. ***radiata*** van Someren & Rogers (C. Uganda: Mawakota).
FIG. 58. ***ansellica*** (Butler), ♀ (Uganda: Bwamba Valley).



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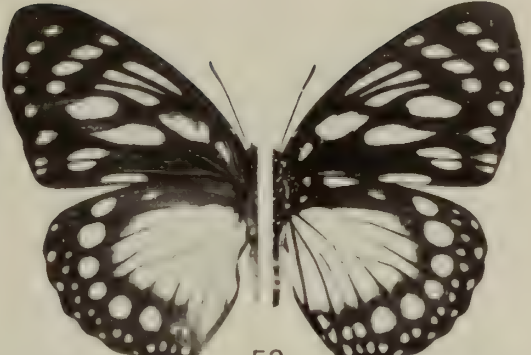

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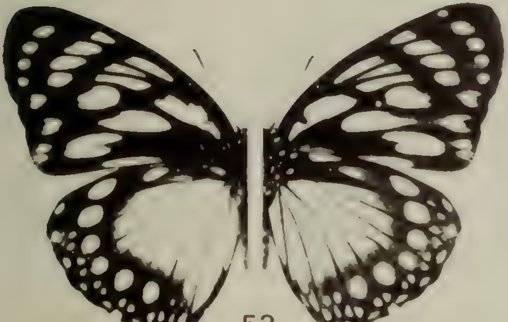

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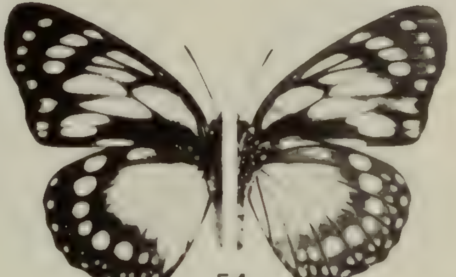

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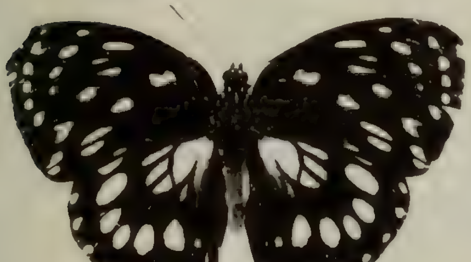

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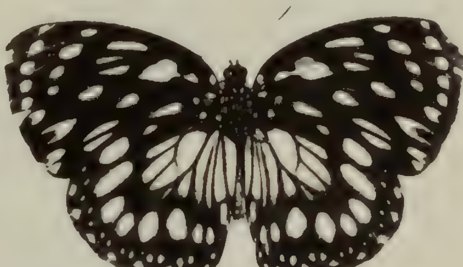

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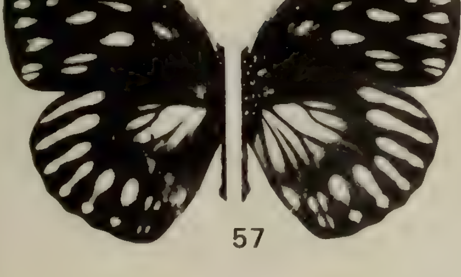

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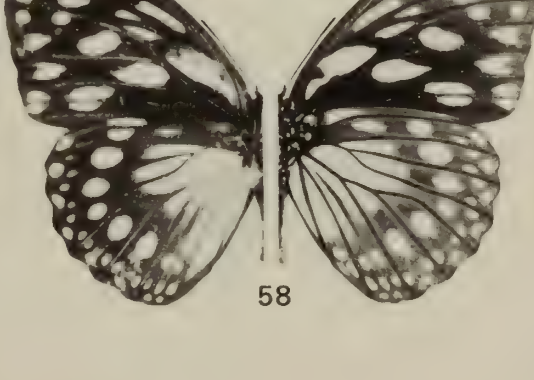


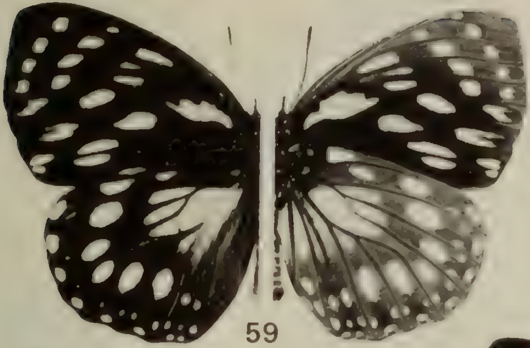
58

PLATE 8

Euxanthe eurinome (Cramer)

Upper & undersides

FIG. 59. *ansellica* (Butler), ♂ (Uganda: Toro, Mpanga Forest).
FIG. 60. *ansellica* (Butler), ♂ (Southern Cameroun).
FIG. 61. *ansellica* (Butler), ♂ (Uganda: Bwamba Valley).
FIG. 62. *ansellica* (Butler), ♀ (Uganda: Toro, Mpanga Forest).
FIG. 63. *ansellica* (Butler), ♂ (Uganda: Bwamba Valley).
FIG. 64. *ansellica* f. *burgeoni* Le Cerf, ♂ holotype (E. Congo: Kindu). Photos MNHN, Paris. No underside figured.
FIG. 65. *celadon* Le Cerf, ♂ holotype (Gabun). Photo MNHN, Paris. No underside figured.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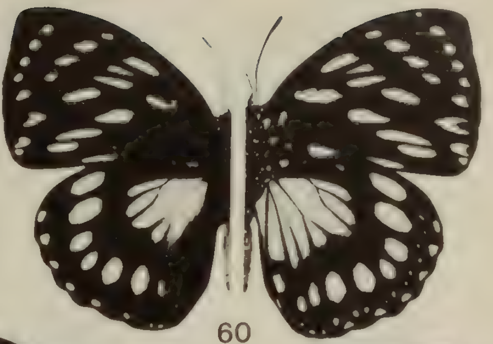
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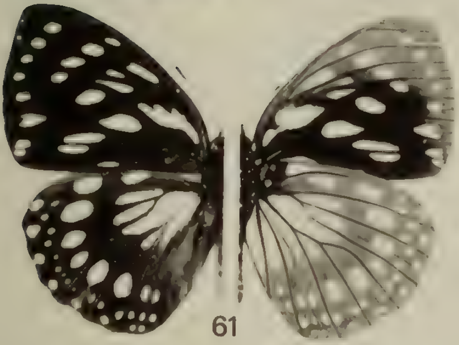
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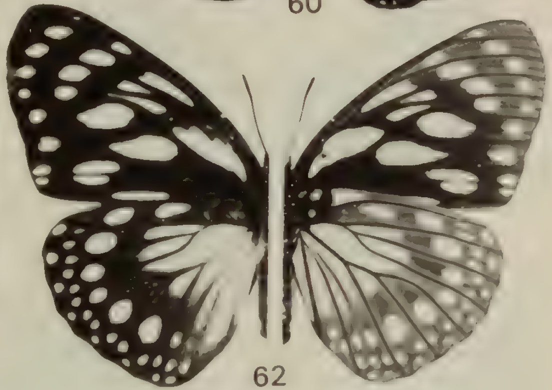
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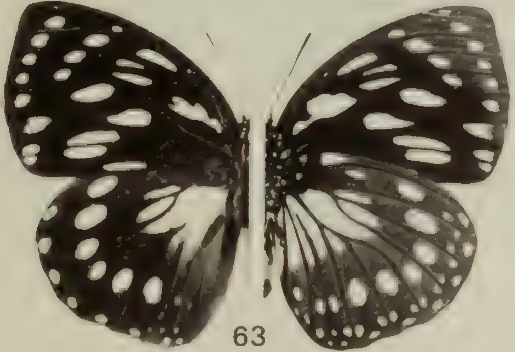
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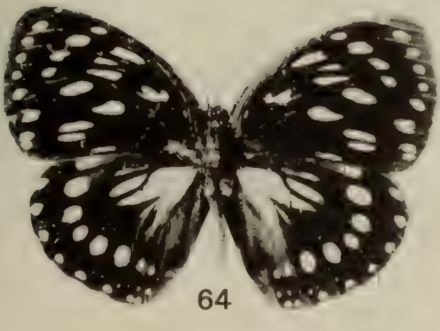
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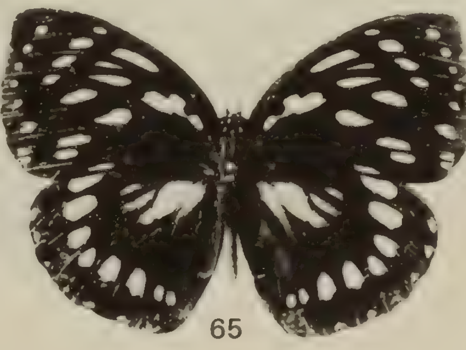
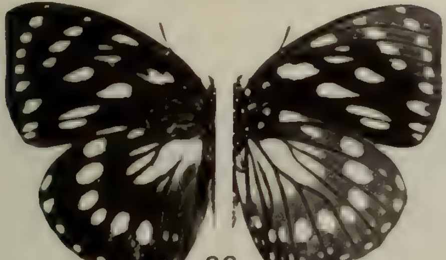

65

PLATE 9

Euxanthe eurinome (Cramer)

Upper & undersides

Figs 66, 67. *elgonae* subsp. n. ♂ paratypes (Kenya: Mara District, Gori River Forest).
Fig. 68. *elgonae* subsp. n. ♀ paratype (Kenya: S.E. Mt Elgon, Trans Nzoia).
Fig. 69. *elgonae* subsp. n. ♂ paratype (Kenya: S.E. Mt Elgon, Trans Nzoia).
Fig. 70, 72. *elgonae* subsp. n. ♂ holotype (Kenya: S.E. Mt Elgon, Trans Nzoia).
Fig. 71, 73. *elgonae* subsp. n., ♀ allotype (Kenya: S.E. Mt Elgon, Trans Nzoia).



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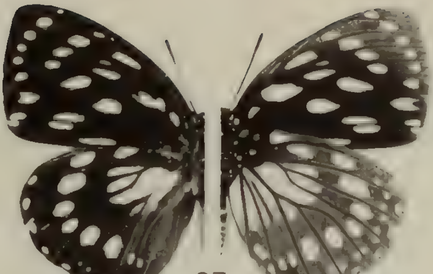

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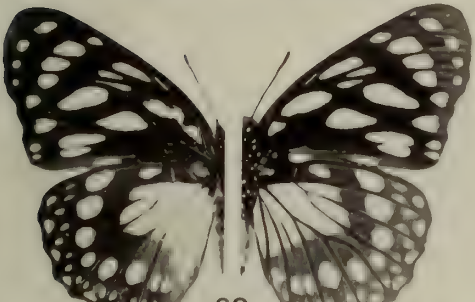

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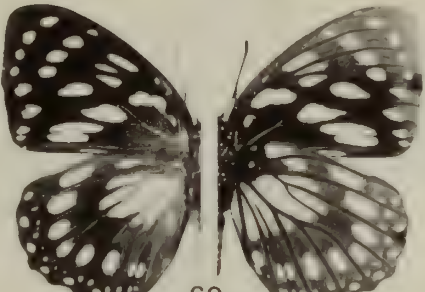

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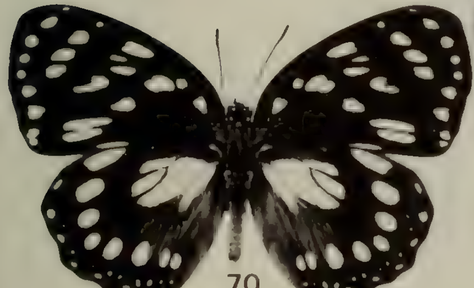

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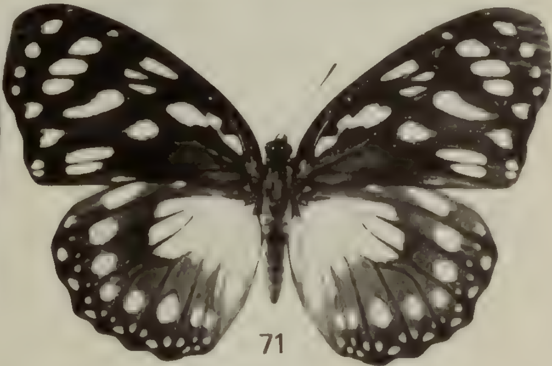

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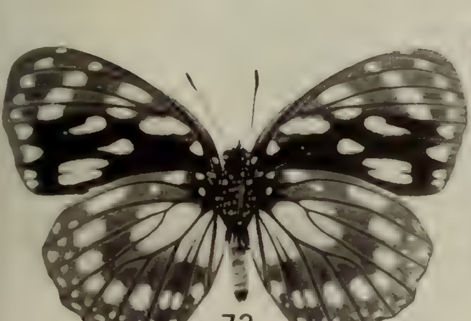

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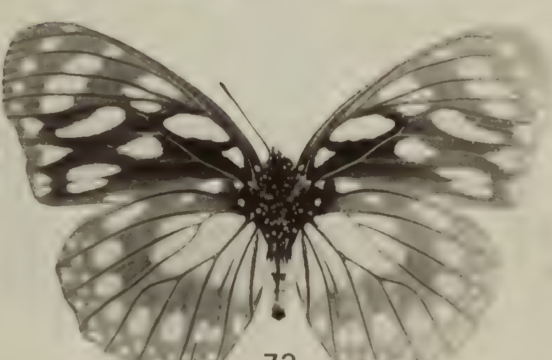


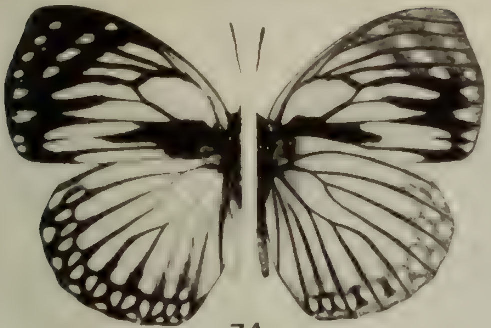
73

PLATE 10

Euxanthe crossleyi (Ward)

Upper & undersides

FIG. 74. *crossleyi* ♂ (E. Congo: Beni).
FIG. 75. *crossleyi* ♂ (Moyen Congo [Congo: Brazzaville]).
FIGS 76, 77. *crossleyi* ♂ type (Cameroun). Photos BMNH Nos 50116–7.
FIGS 78, 79. *crossleyi* ♀ type (Cameroun). Photos BMNH Nos 50118–9.
FIG. 80. *crossleyi* ♀ (Moyen Congo [Congo: Brazzaville]).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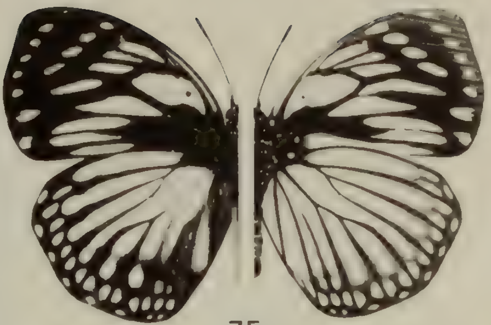
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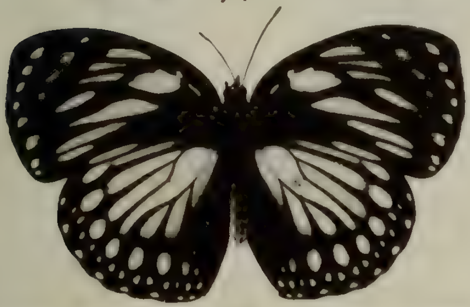
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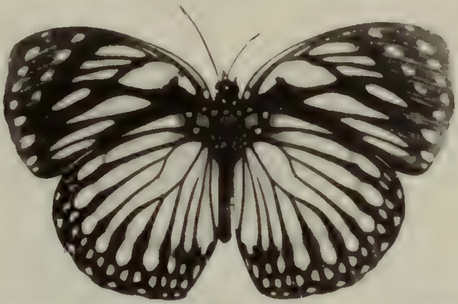
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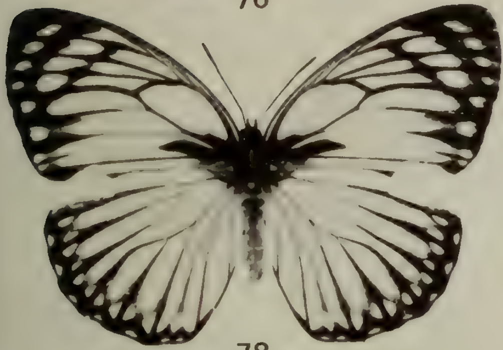
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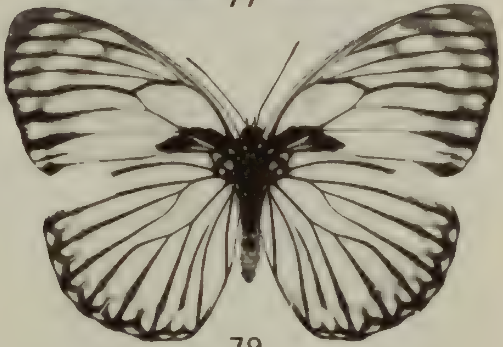
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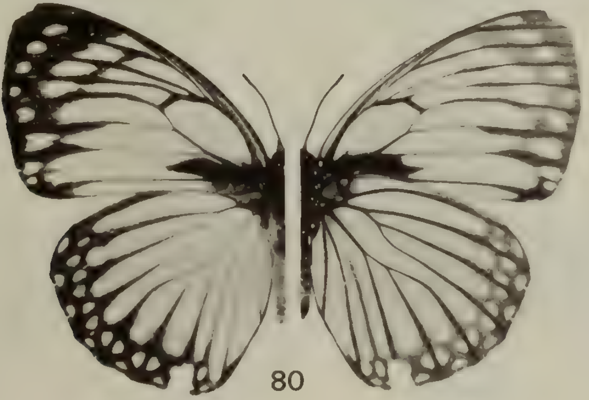
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PLATE 11

Euxanthe crossleyi (Ward)

Upper & undersides

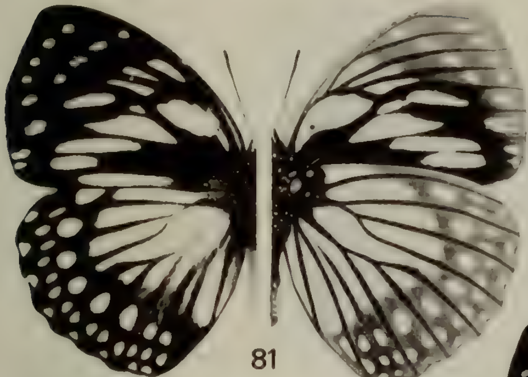
FIGS 81, 83. *ansorgei* Rothschild & Jordan, ♂ (Uganda: Masaka District, west side of Lake Victoria north of Kagera River, Katera Forest).

FIG. 82. *ansorgei* Rothschild & Jordan, ♂ (Uganda: Masaka District, west side of Lake Victoria north of Kagera River, Katera Forest). Note abnormal venation of hindwing.

FIG. 84. *ansorgei* Rothschild & Jordan, ♂ (Tanzania: Kigoma District).

FIG. 85. *ansorgei* Rothschild & Jordan, ♂ (Uganda: Kigezi District, Kayonza, lower Impenetrable Forest).

FIG. 86. *ansorgei* Rothschild & Jordan, ♂ (Kenya: Nandi-Elgon Forests, Kakamega).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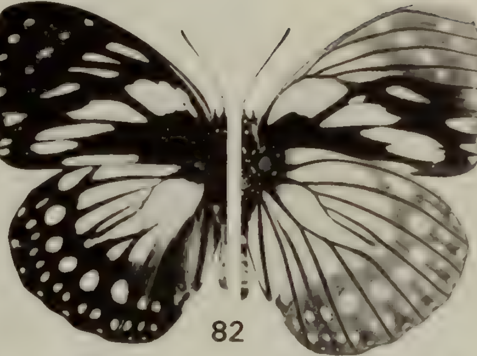
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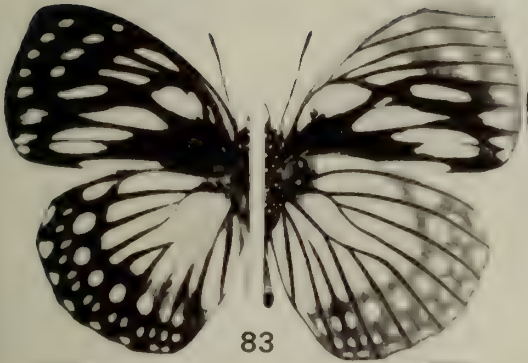
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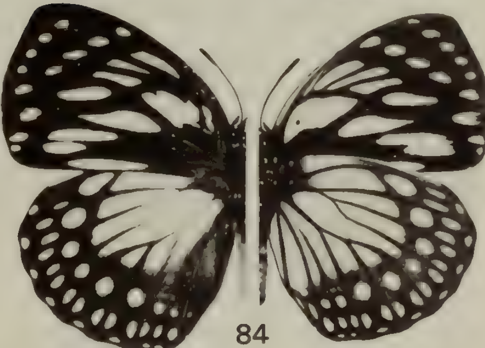
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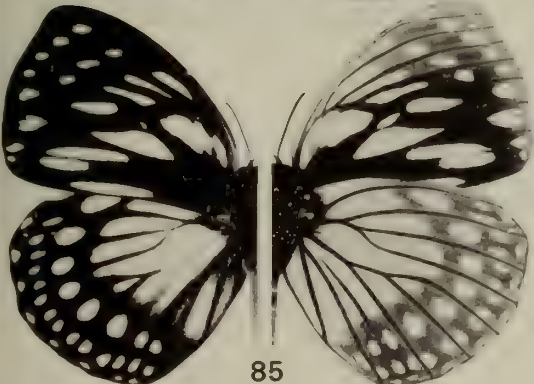
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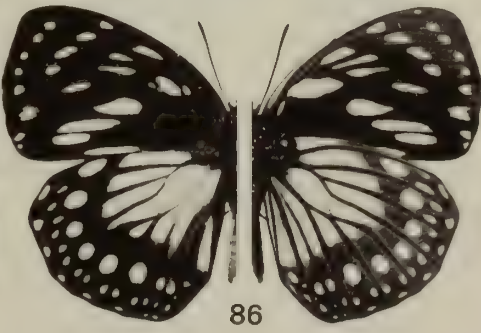

86

PLATE 12

Euxanthe crossleyi (Ward)

Upper & undersides

Fig. 87. *ansorgei* Rothschild & Jordan, ♂ (Uganda: Kigezi District, Kayonza, lower Impenetrable Forest).

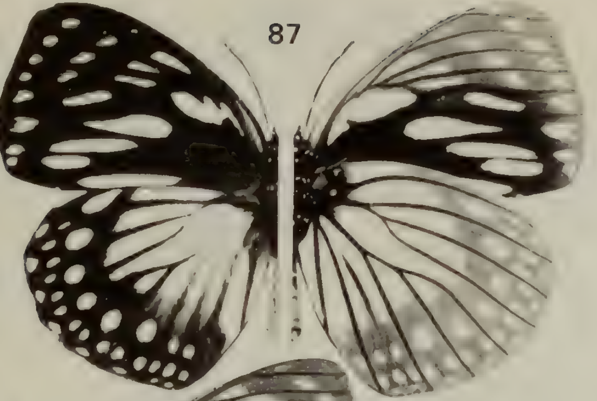
Fig. 88. *ansorgei* Rothschild & Jordan, ♀ (Kenya: Nandi-Elgon Forests, Kakamega).

Fig. 89. *ansorgei* ♀ transitional to *magnifica* Rebel (Uganda: Masaka District, Katera Forest).

Figs 90, 91. *magnifica* Rebel, ♂ holotype (E. Congo: Nawambi-Irumu). Photos BMNH Nos 51246–7.

Fig. 92. *magnifica* Rebel, ♂ (Congo: Middle Lowa Valley, Walikali).

Fig. 93. *ansorgei* ♀ transitional to *magnifica* Rebel (Uganda: Masaka District, Katera Forest).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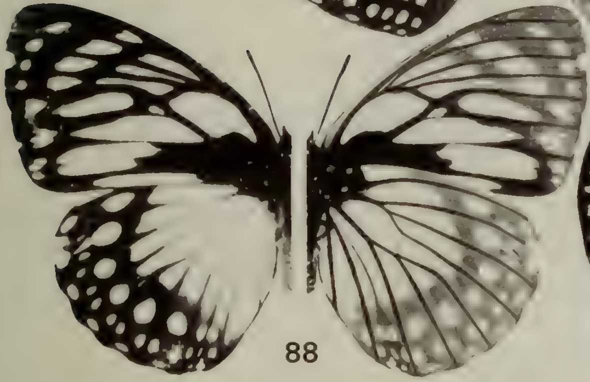
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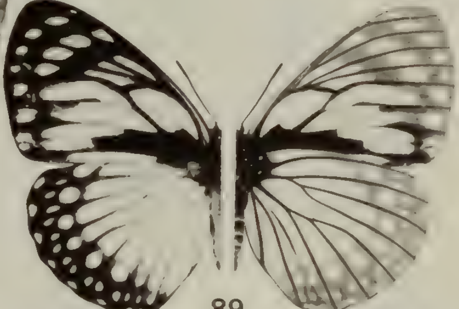
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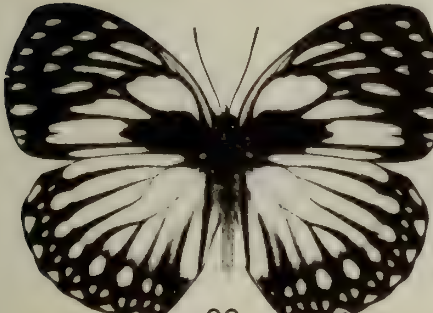
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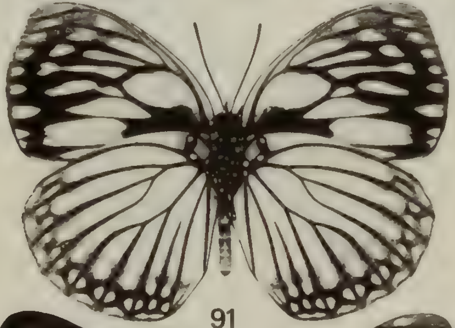
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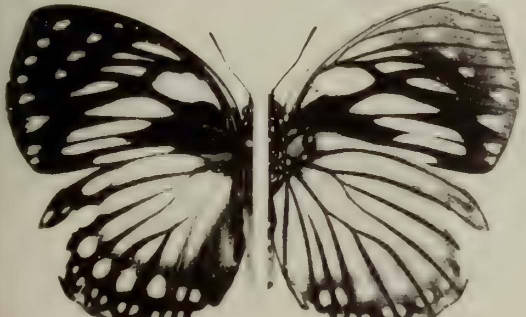
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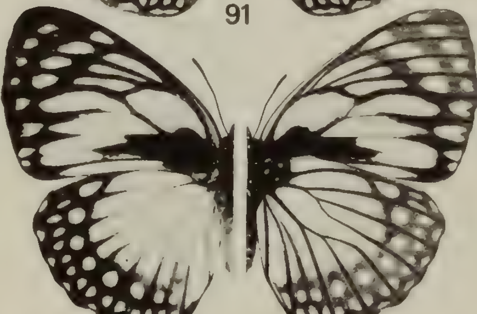
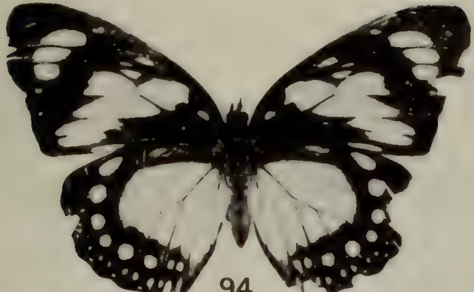

93

PLATE 13

Euxanthe

Upper & undersides

FIGS 94, 95. *wakefieldi* (Ward), ♀ type (E. Africa: Ribe). Photos BMNH Nos 51256–7.
FIGS 96, 97. *wakefieldi* (Ward), ♀ (Kenya: coastal forests).
FIGS 98–100. *wakefieldi* (Ward), ♂ (Kenya: coastal forests).
FIG. 101. *madagascariensis* (Lucas), ♂ (Madagascar).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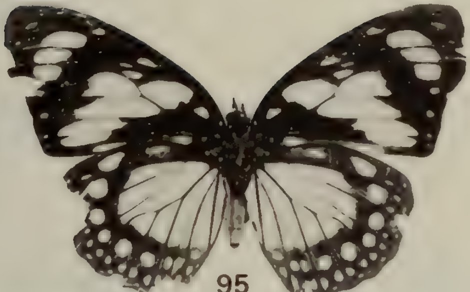
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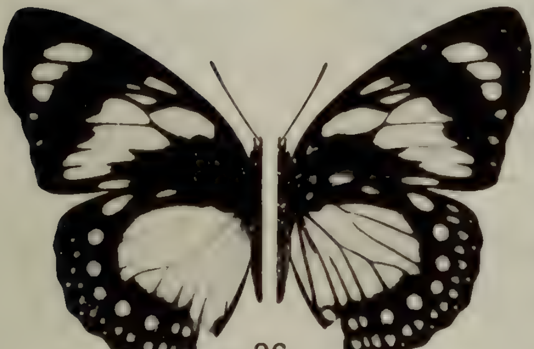
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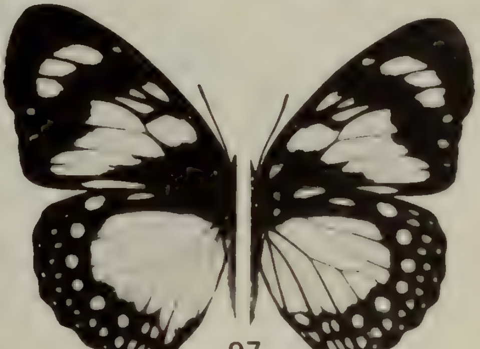
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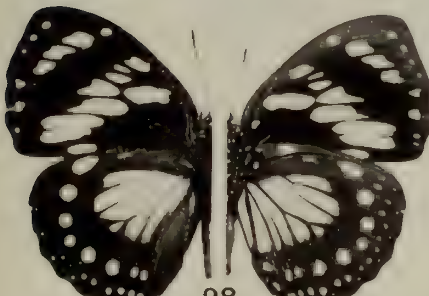
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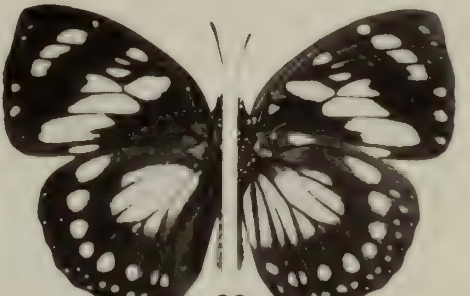
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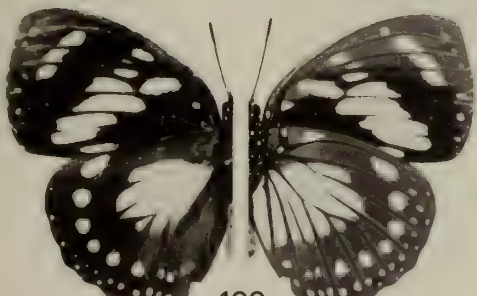
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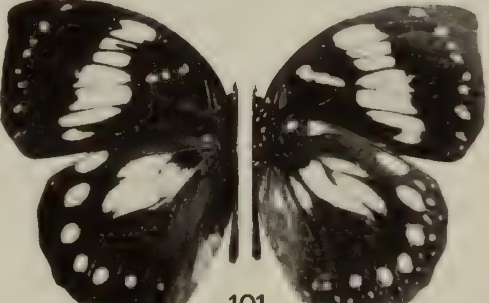
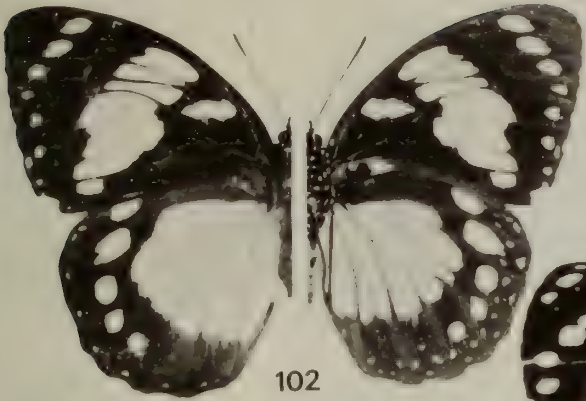

101

PLATE 14

Euxanthe

Upper & undersides

FIG. 102. *madagascariensis* (Lucas), ♀ (Madagascar).
FIG. 103. *trajanus trajanus* (Ward), ♂ (Kamerun [Cameroun]).
FIG. 104. *trajanus trajanus* (Ward), ♀ (Kamerun [Cameroun]).
FIG. 105. *trajanus* cline to *vansomereni* Poulton, ♂ (Eastern Congo: Beni-Irumu).
FIG. 106. *trajanus vansomereni* Poulton, ♂ paratype (Uganda: Entebbe). Photos BMNH Nos 51252–3.
FIG. 107. *trajanus vansomereni* Poulton, ♀ paratype (Uganda: Entebbe). Photos BMNH Nos 51254–5.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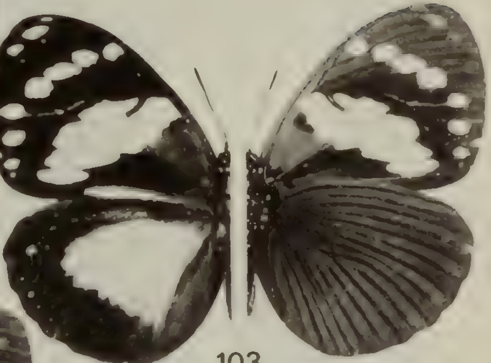
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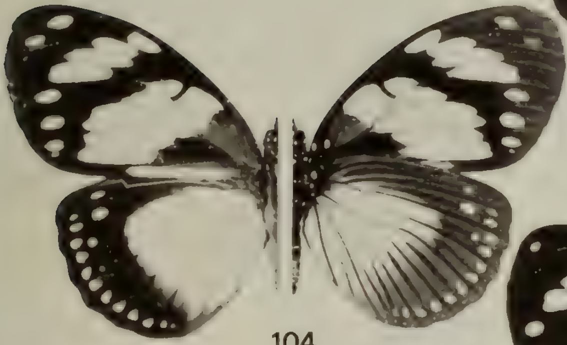
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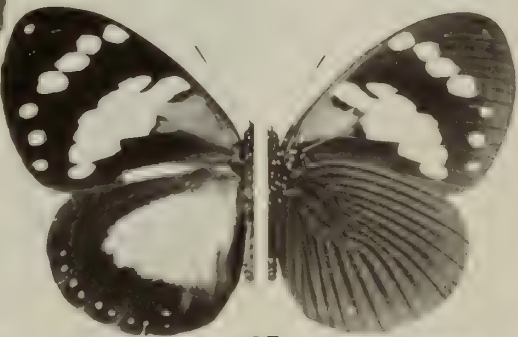
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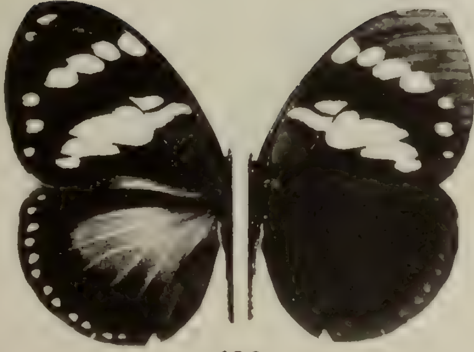
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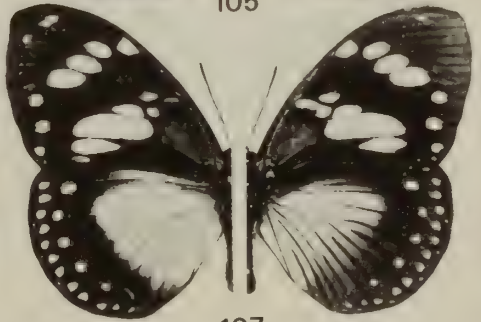
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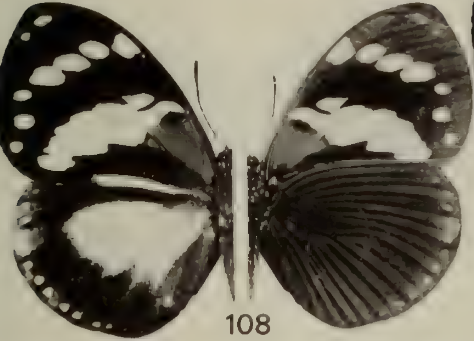
PLATE 15

Euxanthe trajanus (Ward)

Upper & undersides

FIG. 108. *vansomereni* Poulton, ♂ (Uganda: Mawakota).
FIG. 109. *vansomereni* Poulton, ♀ (Uganda: Mawakota).
FIG. 110. *gabonicus* Le Cerf, ♂ type (Gabon, Echibanga). Photos BMNH Nos 51250–1.
FIG. 111. *gabonicus* Le Cerf, ♂ (Gabun).
FIG. 112. *antonius* Rousseau-Decelle, ♂ paratype (Congo: Kafakumba, Katanga). Photos I. Grahame.
FIGS 113, 114. *nigeriae* subsp. n., ♂ holotype (Nigeria: Ikom, Ogolo Prov.) (*Jackson*).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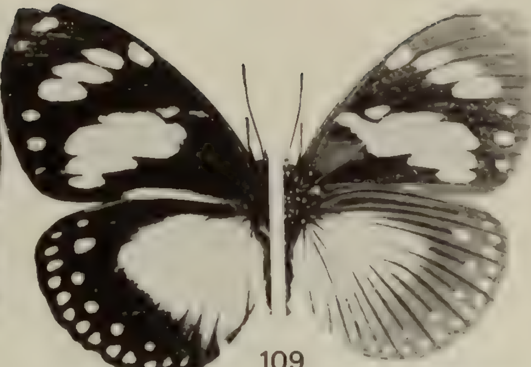
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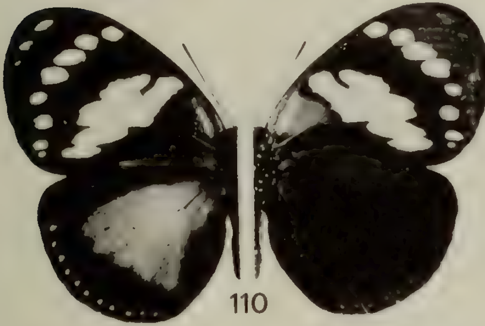
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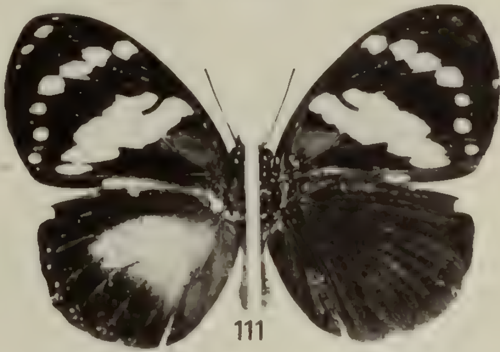
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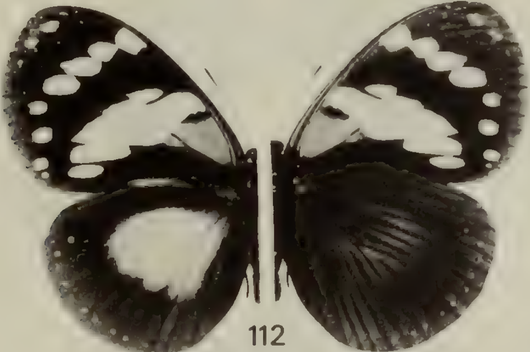
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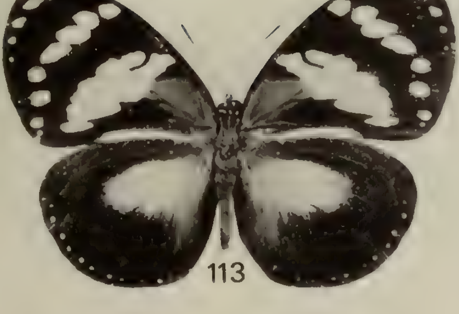
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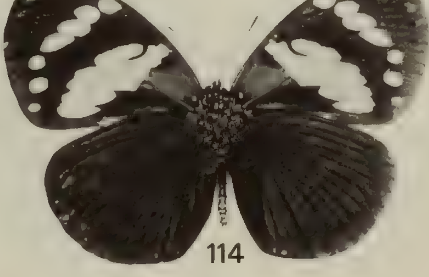
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PLATE 16

Euxanthe

Upper & undersides

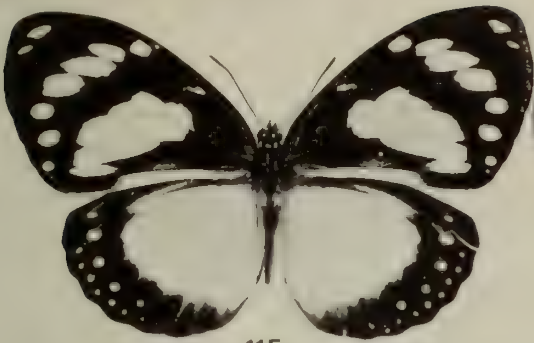
FIGS 115, 116. ***trajanus nigeriae*** subsp. n., ♀ allotype (Nigeria: Ikom, Ogolo Prov.) (*Jackson*).

FIGS 117, 118. *tiberius tiberius* Grose-Smith, ♂ holotype (Kenya: Mombasa). Photos BMNH Nos 51260–1.

FIGS 119, 120. *tiberius tiberius* Grose-Smith, ♀ allotype (Kenya: Mombasa). Photos BMNH Nos 51262–3.

FIG. 121. *tiberius tiberius* Grose-Smith, ♂ (Kenya: coastal forests).

FIG. 122. *tiberius tiberius* Grose-Smith, ♀ (Kenya: coastal forests).



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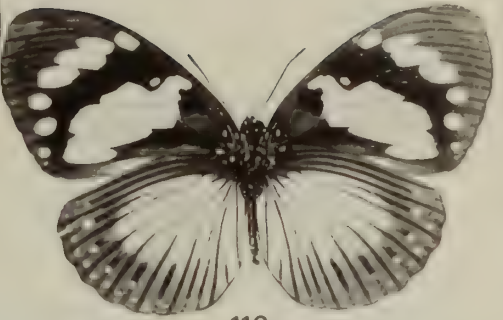

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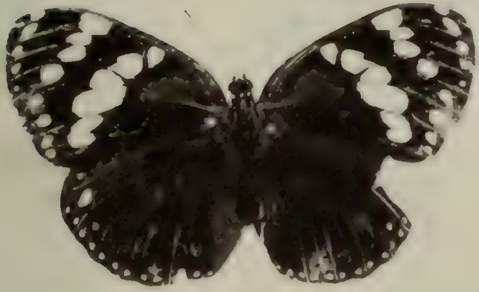

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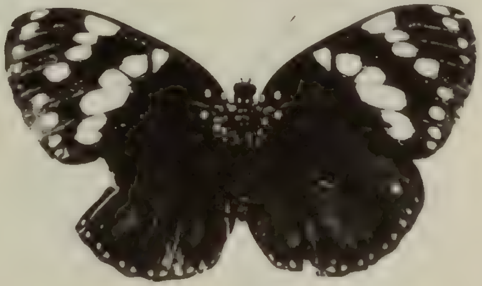

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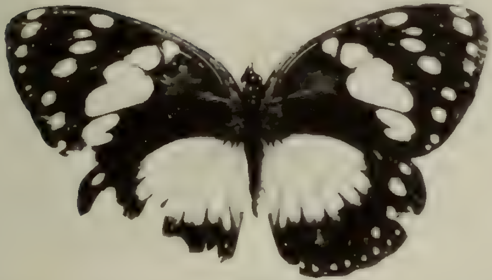

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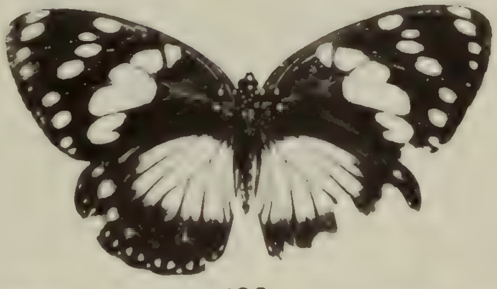

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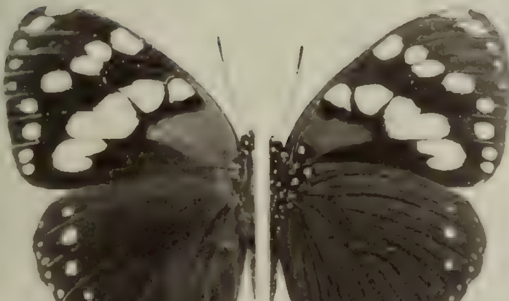

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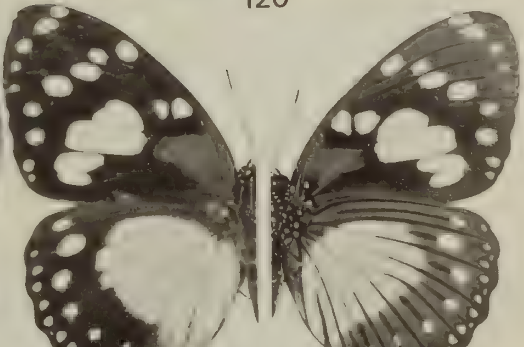

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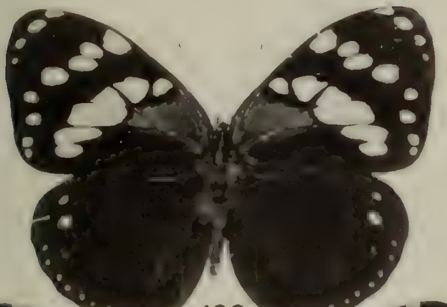
PLATE 17

Euxanthe tiberius Grose-Smith

Upper & undersides

FIGS 123, 124. *meruensis* van Someren, ♂ type (Kenya: Meru). Photos BMNH Nos 51268–9.
FIGS 125, 126. *meruensis* van Someren, ♀ type (Kenya: Meru). Photos BMNH Nos 51270–1.
FIG. 127. *meruensis* van Someren, ♂ (Kenya: Mt Kenya, Meru Forest).
FIG. 128. *meruensis* van Someren, ♀ (Kenya: Mt Kenya, Meru Forest).
FIGS 129–136. *tiberius*. Early stages from ova laid 25.vii.1964, obtained from a ♀ collected in the Makadara Forest.
FIG. 129. First instar larva, 3.ix.1964.
FIG. 130. Second instar larva, 6.ix.1964.
FIG. 131. Third instar larva, 11.ix.1964.
FIG. 132. Fourth instar larva, 15.ix.1964.
FIG. 133. Fifth instar larva, 26.ix.1964.
FIG. 134. Larval heads from the five instars.
FIGS 135, 136. Pupae, 1.x.1964.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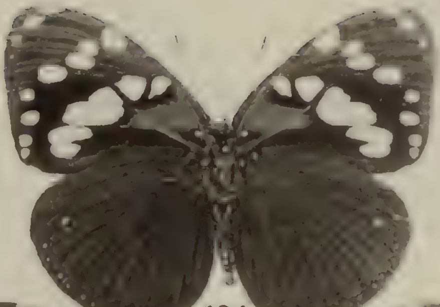
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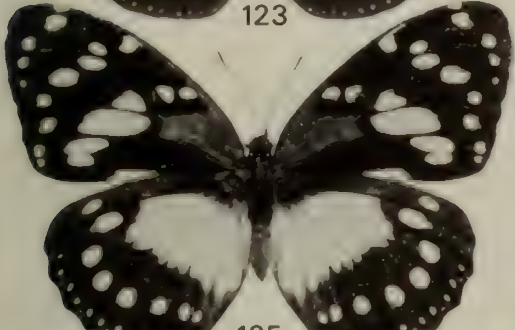
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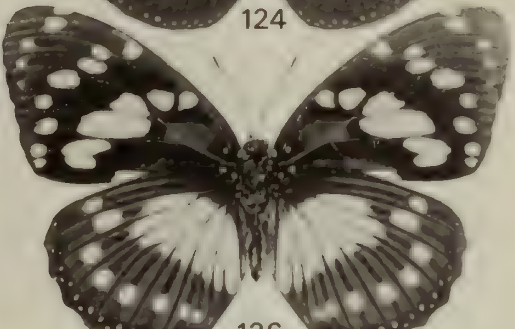
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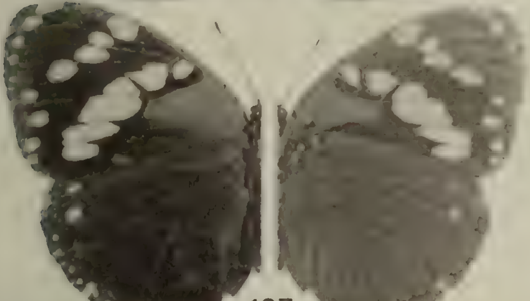
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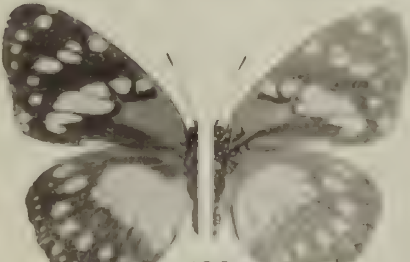
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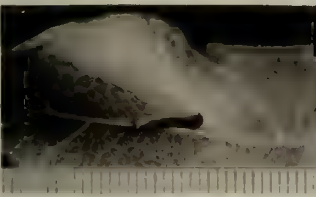
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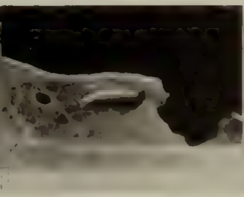
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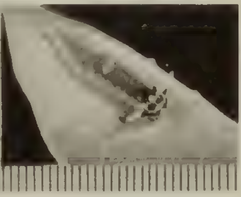
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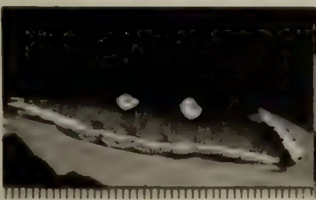
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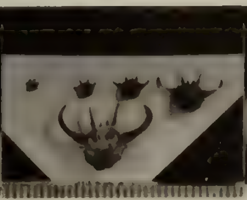
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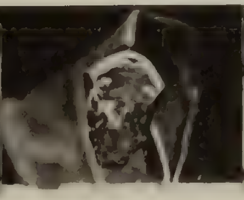
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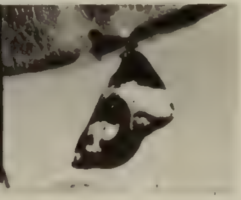
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PLATE 18

Charaxes

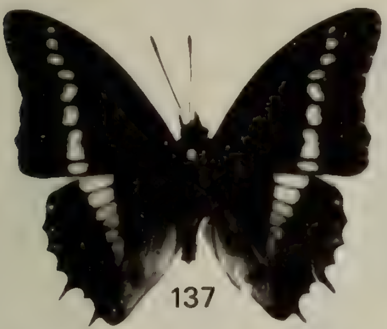
Upper & undersides

FIGS 137, 138. *octavus* *Minig* = *patergodarti* Neidhoefer, ♂ holotype (Central African Republic: Bangui). Photos J. Neidhoefer.

FIGS 139, 140. *ansorgei rydoni* van Someren, ♀ neallotype (Tanzania: Usambara Mts, Lushoto, Magamba, 6000 ft, 4.iii.1973) (*I. Bampton*). (From coloured photos by W. H. Henning.)

FIGS 141, 142. *eudoxus lucyae* subsp. n., ♀ holotype (Tanzania: Usambara Mts, Magamba Forest, Lushoto, 6000 ft, 4.iii.1973) (*I. Bampton*). (From coloured photos by W. H. Henning.)

FIGS 143, 144. *eudoxus lucyae* subsp. n., ♀ paratype (Tanzania: Magamba Forest, Lushoto, 5000 ft, ii. 1974) (*S. C. Collins*). Photos BMNH.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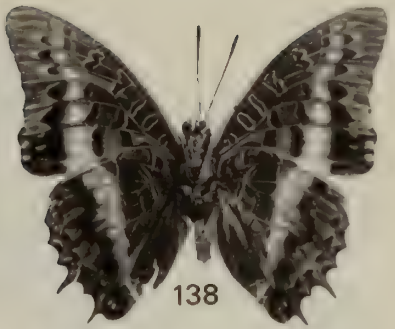
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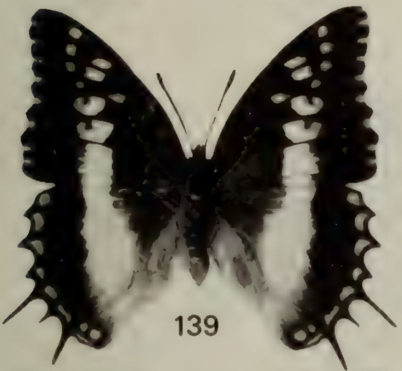
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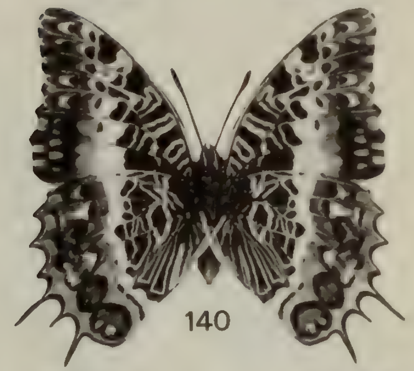
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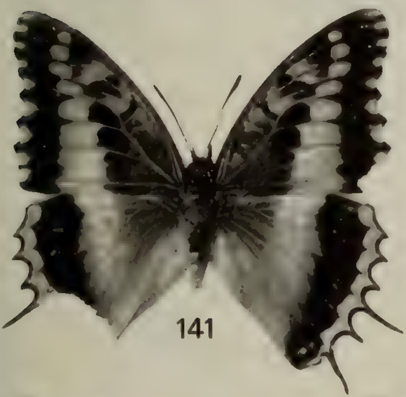
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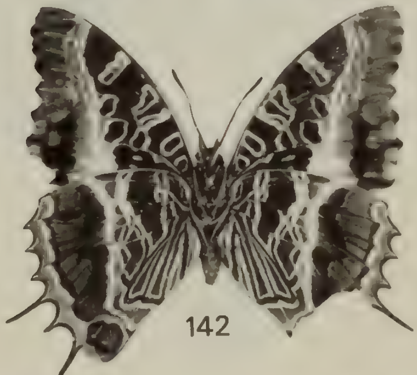
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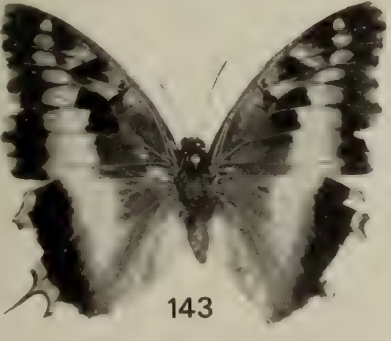
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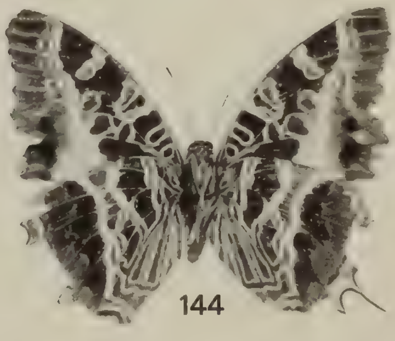
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PLATE 19

Charaxes

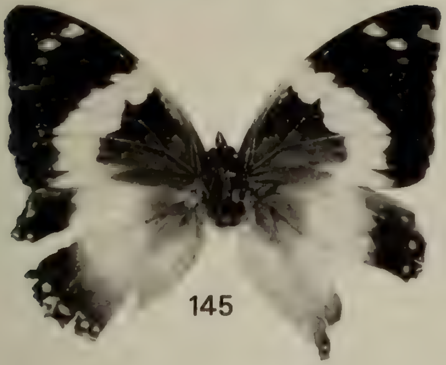
Upper & undersides

Figs 145, 146. *cithaeron cithaeron* ♀ aberration *whitei* ab. n., holotype (South Africa: Natal, Eshowe, 8.v.1971) (*R. S. White*). Photos BMNH.

Figs 147, 148. *usambarae* ♀ form *collinsi* forma n., holotype (Tanzania: Usambara Mts, Amani, x. 1973) (*S. C. Collins*). Photos BMNH.

Figs 149, 150. *martini* van Someren, ♀ (Malawi: Mlange Mt, Malosa Stream, 15.x.1971) (*C. H. McCleery*).

Figs 151, 152. *mafuga* van Someren, ♀ neallotype (Uganda: Ruhiza, Impenetrable Forest, 8000 ft, 28.ix.1972) (*I. Bampton*). Photos BMNH.



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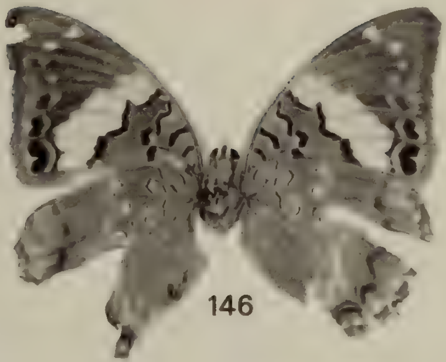

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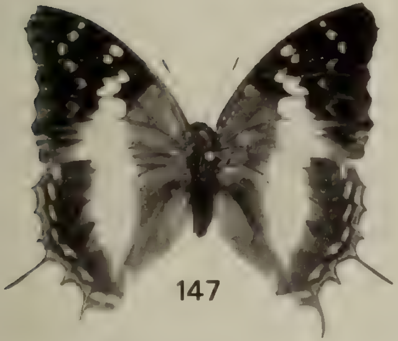

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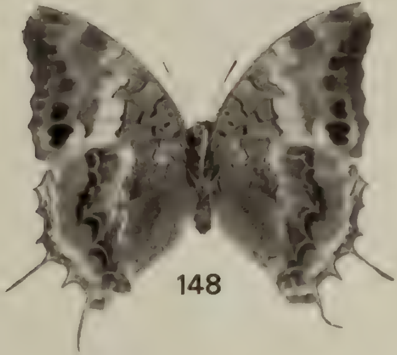

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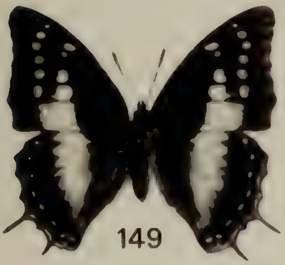

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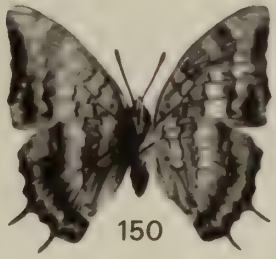

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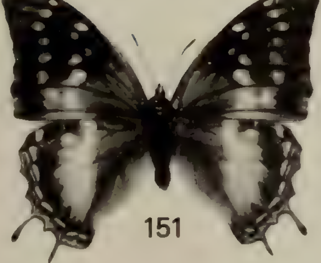

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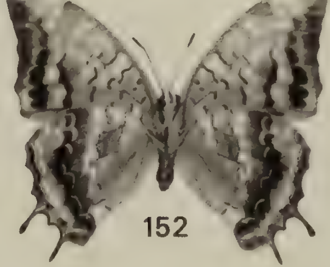

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3. WATSON, A. A revision of the Ethiopian Drepanidae (Lepidoptera). Pp. 177: 18 plates, 270 text-figures. August 1965. £4.20.
4. SANDS, W. A. A revision of the Termite Subfamily Nasutitermitinae (Isoptera, Termitidae) from the Ethiopian Region. Pp. 172: 500 text-figures. September, 1965. £3.25.
6. OKADA, T. Diptera from Nepal. Cryptochaetidae, Diastatidae and Drosophilidae. Pp. 129: 328 text-figures. May, 1966. £3.
7. GILIOMEE, J. H. Morphology and Taxonomy of Adult Males of the Family Coccidae (Homoptera: Coccoidea). Pp. 168: 43 text-figures. January, 1967. £3.15.
8. FLETCHER, D. S. A revision of the Ethiopian species and a check list of the world species of *Cleora* (Lepidoptera: Geometridae). Pp. 119: 14 plates, 146 text-figures, 9 maps. February, 1967. £3.50.
9. HEMMING, A. F. The Generic Names of the Butterflies and their type-species (Lepidoptera: Rhopalocera). Pp. 509. £8.50. Reprinted 1972.
10. STEMPFFER, H. The Genera of the African Lycaenidae (Lepidoptera: Rhopalocera). Pp. 322: 348 text-figures. August, 1967. £8.
11. MOUND, L. A. A review of R. S. Bagnall's Thysanoptera Collections. Pp. 172: 82 text-figures. May, 1968. £4.
12. WATSON, A. The Taxonomy of the Drepaninae represented in China, with an account of their world distribution. Pp. 151: 14 plates, 293 text-figures. November, 1968. £5.
13. AFIFI, S. A. Morphology and Taxonomy of Adult Males of the families Pseudococcidae and Eriococcidae (Homoptera: Coccoidea). Pp. 210: 52 text-figures. December, 1968. £5.
14. CROSSKEY, R. W. A Re-classification of the Simuliidae (Diptera) of Africa and its Islands. Pp. 198: 1 plate, 331 text-figures. July, 1969. £4.75.
15. ELIOT, J. N. An analysis of the Eurasian and Australian Neptini (Lepidoptera: Nymphalidae). Pp. 155: 3 plates, 101 text-figures. September, 1969. £4.
16. GRAHAM, M. W. R. DE V. The Pteromalidae of North-Western Europe (Hymenoptera: Chalcidoidea). Pp. 908: 686 text-figures. November, 1969. £19.
17. WHALLEY, P. E. S. The Thyrididae of Africa and its Islands. Pp. 198: 68 plates, 15 text-figures. October, 1971. £12.
18. SANDS, W. A. The Soldierless Termites of Africa (Isoptera: Termitidae). Pp. 244: 9 plates, 661 text-figures. July, 1972. £9.90.
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THE SPECIES OF CHALCIDOIDEA DESCRIBED FROM NORTH AMERICA NORTH OF MEXICO BY FRANCIS WALKER (HYMENOPTERA)

B. D. BURKS

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
ENTOMOLOGY Vol. 32 No. 4
LONDON : 1975

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BY

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By B. D. BURKS

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SYNOPSIS

The 72 species of Chalcidoidea described by Francis Walker from North America north of Mexico are reviewed and full information is given on their type-material. The species are assigned, where possible, to their currently correct genera, and synonymies are given. Twenty-six specific names are newly synonymized. Sixty-three lectotypes are newly designated, of which eight are for other authors' species here synonymized with those of Walker.

INTRODUCTION

Francis Walker described 72 species of Chalcidoidea from North America north of Mexico. Of these, 59 were described from collections made by E. Doubleday at St John's Bluff, Florida. Another species, described from 'East Florida, Doubleday,' may also have been from St John's Bluff, and another, from 'North America, Doubleday' might have been from St John's Bluff. Five other species were described from specimens collected by G. Barnston at St Martin's Falls, Albany River, Ontario, Canada. Two species were from collections John Abbot made in Georgia. There was one species each from the collections of W. S. M. D'Urban in Canada and R. Forster in Ohio. One species was described from a specimen reared in

England from a pine cone from California, and another was from a specimen taken by an unknown collector 'near New York.'

St John's Bluff, where Doubleday collected the bulk of these Walker species, is a locality still preserved, in Duval County, Florida. It is located on the south bank of the St John's River and is now contained in the Fort Caroline National Memorial. This is approximately 12 kilometres east of the city of Jacksonville, and about 8 kilometres inland from the Atlantic Ocean. It lies between 81° 29′ and 81° 30′ W at 30° 23′ 15″ N. The bluff itself rises 12·5 metres from the river bank, just east of the remains of Fort Caroline. It is approximately 77·5 metres from the river bank to the crest of this bluff, and the bluff extends approximately 930 metres from east to west. The bluff and the immediately adjacent land has a vegetative cover. Approximately 310 metres south of the crest of St John's Bluff the land becomes marshy.

Barnston collected his specimens at St Martin's Falls on the Albany River, in Ontario, Canada. This locality is often cited as Hudson Bay, but it is actually far inland from Hudson Bay. St Martin's Falls, which was at one time a Hudson Bay Company post, is on the Albany River some 80 kilometres upstream from the confluence with the Ogoki River. This is at about 51° 30′ N, 86° 30′ W, approximately 440 kilometres upstream from Fort Albany on James Bay.

The balance of the species Walker described from North America north of Mexico are from scattered localities about which no further data are available.

In this paper each Walker species is assigned, as far as possible, to its currently correct genus, and synonymies are given. In the few cases where a Walker name is synonymized with an earlier name (either of Walker or of another author) it is dealt with under the valid name. The species are listed separately for each family and, within each family, they are listed in alphabetical order of the valid specific name.

Of the 72 Walker species, lectotypes for 4 species have already been designated, and the types of 4 others are missing. The types of all the rest are in the British Museum (Natural History) (hereafter abbreviated to BMNH). In this paper I have designated lectotypes for 63 species. The circular colour-coded BMNH type-labels have been added to all the Walker types examined, purple for lectotypes and blue for paralectotypes. Each lectotype bears in addition a label stating 'LECTOTYPE [name of species] designated B. D. Burks 1975'. I refrained from designating a lectotype for one species because it is now represented in the collection by a single, very poor specimen. There is a chance that a better type-specimen of this species will be found eventually. I give here all the data that are on the Walker types. Some specimens have no label data, others carry only the Walker species name.

In this paper I have also designated lectotypes for several species described by other authors, the types of which are in the U.S. National Museum (hereafter abbreviated to USNM). This was required because those species, represented by syntypes, are here synonymized under Walker species.

In general the Walker types of North American Chalcidoidea are quite well preserved, although all of them are over a century old, and most of them are about

140 years old. There has not been so much colour change in them as I would have expected. Their colours are not greatly different from the colours of specimens of the same species that I have seen that were collected recently.

These Walker types were probably all originally pinned into the BMNH collection, either mounted on cards and with the wings spread, or mounted on small pins that were set on small cards. About 1900 the entire collection was repinned and relabelled by C. O. Waterhouse. He added name labels to the type-specimens; on the reverse side of each label there is the statement 'Stood under this name in old B. M. Coll. V. Waterhouse.' There is every indication that this relabelling was done with the greatest care, but in many species the Waterhouse label does not give the name exactly as it was in the original description. This may be due to the fact that the labels were changed in the old collection during the approximately 55 years the specimens were there, or the name labels in the collection may not have agreed with the published names from the beginning. At any rate it would have been better to have preserved all of Walker's original name labels, but this was done for only a few species.

About 1930 nearly all the Walker types of Chalcidoidea were remounted onto card points by G. B. Thompson. The results were unfortunate for many species. Several of these types have the legs and wings entangled in the mounting medium. It is difficult to make out the characters of the appendages in these types. In others an excessive amount of the mountant was used. However, it has been possible to remount some of these successfully.

ACKNOWLEDGEMENTS

I am greatly indebted to Dr Z. Bouček, Commonwealth Institute of Entomology, for giving me his opinions on several of these Walker type-specimens, the condition of which made placement difficult. Dr H. V. Weems, Florida Department of Agriculture and Consumer Services, Gainesville, kindly furnished information about St John's Bluff. Dr O. Peck, formerly of the Canada Department of Agriculture, Ottawa, provided information about St Martin's Falls.

EULOPHIDAE

Notanisomorpha calavius (Walker) **comb. n.**

Eulophus Calavius Walker, 1847 : 24, ♀, ♂.
Hemiptarsenus calavius (Walker) Peck, 1951 : 428.

TYPE-MATERIAL. There are two female and one male syntypes of this species in the BMNH collection on card points. The first specimen in the series bears the label 'Calavius' in Walker's hand. I designate the second female specimen, labelled 'B.M. Type Hym. 5. 2268', as LECTOTYPE. Described from St John's Bluff, Florida.

Remarks. Although this is a very distinctly marked species, it does not seem to have been redescribed since Walker's time. There is a series of specimens from Maryland in the USNM collection. These specimens had long been thought to represent an undescribed species.

Distribution. Maryland, Florida.

Necremnus cyriades (Walker)

Eulophus Cyriades Walker, 1847 : 25, ♂.
Necremnus cyriades (Walker) Peck, 1951 : 428.

Type-material. One male specimen on a card point is in the BMNH collection; it is in poor condition. It is labelled 'B.M. Type Hym. 5. 2269' and 'Cyriades' in Walker's hand. I designate it LECTOTYPE. The right antenna is broken off beyond the pedicel, but the left antenna still retains funiculars 1 to 3 which bear long branches. Described from St John's Bluff, Florida.

Remarks. There is a single male specimen of this species from Washington, D.C. in the USNM collection. This is the one mentioned by Chittenden (1901 : 86).

Distribution. District of Columbia, Florida.

Biology. Has been reared from the oleuthreutid moth, *Hedya ochroleucana* (Frölich).

Achrysocharella damastes (Walker) **comb. n.**

Closterocerus Damastes Walker, 1847 : 22, ♀.
Entedon Damastes (Walker) Walker, 1848 : 137; Peck, 1951 : 470.

Type-material. One female specimen, mounted on a card, is in the BMNH collection, labelled 'B.M. Type Hym. 5. 2270' and 'Entedon Damastes Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida.

Remarks. This is a brilliantly coloured and distinctively marked species, yet it does not seem to have been redescribed since Walker's time.

Distribution. Florida.

Aprostocetus epidius (Walker) **comb. n.**

Tetrastichus Epidius Walker, 1847 : 28, ♀.
Aprostocetus granulatus Ashmead, 1888 : 105, ♀. **Syn. n.**

Type-material. *Tetrastichus epidius* Walker. There are two female specimens on card points in the BMNH Collection, one of which is labelled 'B. M. Type Hym. 5. 1413; Type, C. F. 1938' and 'Epidius' in Walker's hand. I designate this specimen LECTOTYPE. Described from St John's Bluff, Florida.

Aprostocetus granulatus Ashmead. Described from one female specimen from Jacksonville, Florida; the holotype is USNM no. 28662.

REMARKS. I left this species unplaced in my revision of the North American species of *Tetrastichus* (Burks, 1943 : 604), on the basis of the notes that Dr Ferrière had sent me about the type. When I saw the type myself, however, I recognized it as the species that has been called *Aprostocetus granulatus* Ashmead in the North American literature for almost 80 years.

DISTRIBUTION. Ontario south to Florida, west to Illinois.

BIOLOGY. Reared from dipterous gall on *Sambucus*.

Cirrospilus eunapius Walker

Cirrospilus Eunapius Walker, 1847 : 27, ♀.

TYPE-MATERIAL. Three female syntypes on card points are in the BMNH collection, the first in the series labelled 'Eunapius' in Walker's hand. I designate the second specimen, labelled 'B.M. Type Hym. 5 2271', as LECTOTYPE. Described from St John's Bluff, Florida.

REMARKS. This is a distinctive species, but I have not seen any specimen of it except these types. These are a brownish purple (may be somewhat faded), with a broad yellow band crossing the praescutum and all but the posterior tips of the two segments of the mesoscutum. There is another yellow cross band at the base of the gaster. The forewing has a broad brown band extending from the marginal vein to the posterior wing margin. The apices of the coxae, trochanters, and the bases of the femora are white, the legs otherwise dark brown. The antenna has the first funicular segment slender, one and one-third times as long as the broader second funicular; the club is as long as the funiculus. The scutellum is quite flat and smooth, with the sublateral carinae distinct. The propodeum has a strong longitudinal, median carina. This well-marked species should be easily identified.

DISTRIBUTION. Florida.

Tetrastichus gala Walker

Tetrastichus Gala Walker, 1847 : 28, ♀.

TYPE-MATERIAL. One specimen on a card is in the BMNH collection. It is labelled 'B. M. Type Hym. 5. 1412; Type, C. F., 1938' and 'Tetrastichus Gala Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida.

REMARKS. There are specimens of this species, all from Florida, in the USNM collection.

DISTRIBUTION. Florida.

Tetrastichus granulatus Walker

Tetrastichus granulatus Walker, 1844 : 17, ♀.

TYPE-MATERIAL. There are three female syntypes and the gaster of a fourth female in the BMNH collection. One specimen, mounted on a card, is labelled

'B. M. Type Hym. 5. 1411; 44.17, Hudson's Bay, St. Martin's Falls' and 'Tetrastichus granulatus Walker' by Waterhouse, also 'Type C. F. 1938.' I designate it LECTOTYPE. One of the other specimens is a different species.

REMARKS. I have not seen this species of *Tetrastichus* before, but it should be possible to identify it. The head and body are metallic greenish black, the femora dark metallic green, the tibiae yellow, the antennae dark brown. The forewing has 2 submarginal bristles and the marginal vein is only twice as long as the stigmal vein. Each lateral margin of the praescutum has a single sparse row of bristles. The propodeum is smooth and ecarinate. The ovipositor sheaths do not extend to the apex of the gaster.

DISTRIBUTION. Ontario.

Galeopsomyia haemon (Walker)

Tetrastichus Haemon Walker, 1847 : 28, ♀.
Horismenus haemon (Walker) Burks, 1943 : 605.
Galeopsomyia haemon (Walker) Burks, 1971 : 82.
Euderus columbiana Ashmead, 1888 : 104, ♀. **Syn. n.**
Galeopsomyia columbiana (Ashmead) Girault, 1916 : 348.

TYPE-MATERIAL. *Tetrastichus haemon* Walker. There are two female and two male syntype specimens; one female is labelled 'B. M. Type Hym. 5. 1414; Type C. F., 1938' and 'Haemon' in Walker's hand. I designated it lectotype in an earlier paper (Burks, 1971 : 82). Described from St John's Bluff, Florida. This species is the same as *Euderus columbiana* Ashmead, the one Girault made type-species of his genus *Galeopsomyia*.

Euderus columbiana Ashmead. This was described from an unspecified number of female specimens from the District of Columbia and Florida. There are now six syntype specimens under USNM no. 19923. One, labelled '3192°, Aug. 13, 83; Euderus columbiana Ashm.; Galeopsomyia genotype' is designated LECTOTYPE. USNM records show that 3192° was the District of Columbia.

DISTRIBUTION. New York south to Florida west to Missouri and Arizona.

BIOLOGY. Emerges from cecidomyiid galls.

Euderus herillus (Walker)

Entedon (*Euderus*) *Herillus* Walker, 1847 : 23, ♀.
Euderus herillus (Walker) Dalla Torre, 1898 : 6.
Euderus (*Leipocrossus*) *herillus* (Walker) Yoshimoto, 1971 : 556.

TYPE-MATERIAL. Two female specimens, one of which, designated lectotype by Yoshimoto (1971 : 558), is labelled 'B. M. Type Hym. 5. 2091.' Described from St John's Bluff, Florida.

DISTRIBUTION. Virginia, Georgia, Florida.

Neochrysocharis imbrasus (Walker) **comb. n.**

Entedon Imbrasus Walker, 1847 : 23, ♀.
Encyrtus imbrasus (Walker) Dalla Torre, 1898 : 259.
Microterys imbrasus (Walker) Ashmead, 1900 : 391.
Chrysocharis imbrasus (Walker) Graham, 1963 : 234.

TYPE-MATERIAL. One female specimen mounted on a card is in the BMNH collection, labelled 'B. M. Type Hym. 5. 2274' and 'Entedon Imbrasus Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida.

DISTRIBUTION. Florida.

Necremnus iphinoe (Walker)

Eulophus Iphinoë Walker, 1847 : 25, ♂.
Necremnus iphinoë (Walker) Peck, 1951 : 428.
Eulophus Gobryas Walker, 1847 : 26, '♂' = ♀. **Syn. n.**

TYPE-MATERIAL. *Eulophus iphinoe* Walker. One male specimen on a card point is in the BMNH collection, labelled 'B. M. Type. Hym. 5. 2272' and 'Iphinoe' in Walker's hand. I designate it LECTOTYPE. Described from St John's Bluff, Florida. It clearly is the male that should be associated with the female Walker described under the name *Eulophus gobryas*.

Eulophus gobryas Walker. One female specimen on a card point is in the BMNH collection, labelled 'B. M. Type Hym. 5. 2273' and 'Gobryas' in Walker's hand. I designate it LECTOTYPE. Described from St John's Bluff, Florida.

DISTRIBUTION. Florida.

Stenomesius levana (Walker), **comb. n.**

Elachestus Levana Walker, 1847 : 27, ♀.

TYPE-MATERIAL. There are two female specimens, mounted on card points, in the BMNH collection. The first of these, labelled 'B. M. Type Hym. 5. 2275' and 'Levana' in Walker's hand, is designated LECTOTYPE.

REMARKS. This species does not seem to have been collected again since the original specimens were taken on St John's Bluff. Its characters place it in the genus *Stenomesius*. It has a well marked occipital carina; the pronotum is prominently carinate anteriorly; the thorax is strongly sculptured dorsally; the scutellum is carinate laterally and posteriorly, this carina formed by a series of minute, elongate, pits; the propodeum has two median carinae, these converging to form a single one near centre of the propodeum; the gastral petiole is elongate, the gaster semi-ovate.

DISTRIBUTION. Florida.

Pnigalio minio (Walker)

Eulophus Minio Walker, 1847 : 26, ♀.
Pnigalio minio (Walker) Peck, 1951 : 426.
Elachistus proximus Ashmead, 1894 : 340, ♀. **Syn. n.**

Type-material. *Eulophus minio* Walker. There are two female specimens on card points in the BMNH collection under this name. The first is a *Pnigalio* labelled 'B. M. Type Hym. 5. 2276' and 'Minio' in Walker's hand. I designate it LECTOTYPE. The second specimen belongs in another genus. Described from St John's Bluff, Florida. Miller (1970 : 78) left this species unplaced, in his revision of the North American species of *Pnigalio*.

Elachistus proximus Ashmead. Described from a single female specimen; the holotype is USNM no. 23452. Described from Morgantown, West Virginia. Miller (1970 : 12) gives several synonyms under *proximus*.

Distribution. Quebec south to Florida west to the Mississippi Valley.

Biology. A primary parasite of leaf-miners.

Aulogymnus minyas (Walker), **comb. n.**

Eulophus Minyas Walker, 1847 : 26, ♀.

Type-material. There are two syntype female specimens in the BMNH collection mounted on card points. The first specimen is labelled 'Minyas' in Walker's hand. I designate the second specimen, labelled 'B. M. Type Hym. 5. 2277', as LECTOTYPE. Described from St John's Bluff, Florida.

Remarks. This species does not seem to have been found again since the original description. It clearly belongs in *Aulogymnus*, and is somewhat similar to the European *A. aceris* Foerster.

Distribution. Florida.

Acrias nileus Walker

Acrias Nileus Walker, 1847 : 29, ♀.

Type-material. One female specimen mounted on a card is in the BMNH collection, labelled 'B. M. Type Hym. 5. 2278' and 'Nileus' in Walker's hand. I designate it LECTOTYPE. Described from St John's Bluff, Florida.

Remarks. This distinctively marked species, type-species of the genus *Acrias* Walker, has remained essentially unrecognized since its description over 130 years ago. Ashmead is supposed to have seen this type before he prepared his *Classification of the Chalcid Flies* (1904). If so, the characters he gives for it, 'head large, much wider than the thorax; wings with one or two fuscous fasciae; abdomen conic-ovate, the second segment occupying half the whole surface', are extremely misleading. In fact, the head is not large, but is the same width as the thorax; the forewing has a distinct longitudinal, dark streak in the basal half and peripheral dark spots in the apical area; the gaster is narrow and elongate; and the second gastral segment occupies only one-sixth the length of the gaster. The genus *Acrias*, as represented by its type-species, is closely related to *Euderus* Haliday and, thus, has only very remote relationship to such genera as *Paracrias* Ashmead or *Euparacrias* Brèthes.

There is a specimen of *Acrias nileus* in the USNM collection from Willow Grove, Pa., reared 2 June, 1932, from a host that is thought to be *Agonopterix nebulosa* Zeller. This specimen has been labelled as an unknown genus of Eulophidae for nearly 40 years.

DISTRIBUTION. Pennsylvania, Florida.

Horismenus sardus (Walker)

Entedon (*Horismenus*) *Sardus* Walker, 1847 : 23, ♀.
Encyrtus sardus (Walker) Dalla Torre, 1898 : 263.
Pseudomphale sardus (Walker) Girault, 1918 : 130.
Horismenus sardus (Walker) Peck, 1951 : 468.
Elachristus flavipes Ashmead, 1886 : 133, ♀. [Synonymized by Burks, 1971 : 81.]

TYPE-MATERIAL. *Entedon sardus* Walker. One female specimen, mounted on a card, is in the BMNH collection, labelled 'B. M. Type Hym. 5. 2074; Horismenus sardus Wlk. Type G. J. Kerrich det. 1969' and 'Sardus' in Walker's hand. I designate it LECTOTYPE. Described from North America.

REMARKS. This species has been treated in my recent revision of the North American species of *Horismenus* Walker (Burks, 1971).

ENCYRTIDAE

Pseudencyrtus bolus (Walker) **comb. n.**

Encyrtus bolus Walker, 1844 : 17, ♀.
(?) *Microterys bolus* (Walker) Ashmead, 1900 : 393.
Microterys bolus (Walker) Peck, 1951 : 488.

TYPE-MATERIAL. Three female specimens on individual card points were on a single pin in the BMNH collection, labelled 'Type; Spalangia from swelled willow twig; B. M. Type 5. 1, 115' and 'Encyrtus Bolus Walker' by Waterhouse. The second specimen of the three was repinned and labelled LECTOTYPE, and is here designated as such; the other two were labelled 'paralectotype'. The lectotype has both antennae intact and all legs and wings remaining, but is somewhat entangled in the mounting medium. Described from St Martin's Falls, Albany River, Ontario.

DISTRIBUTION. Ontario, Idaho.

BIOLOGY. There is a series of this species in the USNM collection that was reared at Krassel, Idaho, from dipterous galls on *Salix*.

Chrysopophagus flaccus (Walker) **comb. n.**

Encyrtus (*Cerchysius*) *Flaccus* Walker, 1847 : 21, ♀.
Cerchysius flaccus (Walker) Dalla Torre, 1898 : 244.
Saranotum americanum Perkins, 1906 : 260, ♀. **Syn. n.**
Chrysopophagus americanus (Perkins) Peck, 1951 : 499.

Type-material. *Encyrtus flaccus* Walker. A single female specimen, mounted on a card point is under the genus *Cerchysius*, labelled 'B. M. Type Hym. 5. 2279' and 'Cerchysius Flaccus Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This specimen is poorly mounted and the all important dorsal thoracic bristles have been rubbed off, but it clearly is the species long known in North American literature as *americanus* Perkins.

Saranotum americanum Perkins. This was described from one female specimen from Ohio; the type is in the Bishop Museum, Honolulu, and I have not seen it. There are, however, specimens in the USNM that P. H. Timberlake compared with this type.

Distribution. Continental United States, Hawaii.

Biology. This is a secondary parasite of leafhoppers, emerging from the cocoons of their dryinid primary parasites.

Encyrtus gastron Walker

Encyrtus gastron Walker, 1847 : 21, ♀.

Type-material. There is a single specimen, mounted on a card point, in the BMNH collection. It is labelled 'B. M. Type Hym. 5. 2280' and 'Gastron, Walk. Fla.' in Walker's hand. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This specimen is so poorly preserved that it probably never can be placed. Both antennae are missing, the left forewing is missing, and the hindwings and legs are embedded in the mounting medium.

Distribution. Florida.

Encyrtus reate Walker

Encyrtus Reate Walker, 1847 : 22, ♂.

Type-material. Lost. Described from St John's Bluff, Florida.

Distribution. Florida.

Psyllaephagus vectius (Walker) **comb. n.**

Encyrtus Vectius Walker, 1847 : 21, ♂.
Syrphophagus vectius (Walker) Ashmead, 1900 : 398.
Encyrtus solus Howard, 1885 : 15, ♀. **Syn. n.**
Psyllaephagus solus (Howard) Gahan & Waterston, 1926 : 375.

Type-material. *Encyrtus vectius* Walker. A single badly broken male specimen, mounted on a card point, is in the BMNH collection. It is labelled 'B. M. Type Hym. 5. 2281' and 'Encyrtus Vectius Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. The specimen is fragmentary, lacking all legs and all apical segments of both antennae, but the characteristic, deep-striate sculpture of the scutellum and the dark shadow in the anteroapical angle of the forewing will place this as the species long known as *Psyllaephagus solus* (Howard).

Encyrtus solus Howard. Described from one female specimen from Gainesville, Florida; the holotype is USNM no. 2637.

DISTRIBUTION. Florida.

BIOLOGY. Has been reared from the gall of *Trioza magnoliae* (Ashmead).

EUPELMIDAE

Eupelmella epicaste (Walker)

Eupelmus Epicaste Walker, 1847 : 20, ♀.
Eupelmella epicaste (Walker) Peck, 1951 : 512.
Macroneura epicaste (Walker) Peck, 1963 : 493.
Eupelminus meteori Gahan, 1913 : 437, ♀. **Syn. n.**
Eupelmella meteori (Gahan) Peck, 1951 : 512.
Macroneura meteori (Gahan) Peck, 1963 : 494.

TYPE-MATERIAL. *Eupelmus epicaste* Walker. There is a single female specimen, mounted on a card point, in the BMNH collection under *Eupelmus*, labelled 'B. M. Type Hym. 5. 2282' and 'Eupelmus Epicaste Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This specimen is intact, but evidently at some time had been broken in two at the propodeum and then rejoined. This is the species now being called *meteori* Gahan.

Eupelminus meteori Gahan. Described from five female specimens; one specimen, labelled 'Brownsville, Tex., Exp. 11; Webster no. 6446 b^7; Type No. 16355 U. S. N. M.' is designated LECTOTYPE.

DISTRIBUTION. Florida, Kansas, Texas.

BIOLOGY. This is secondary parasite, emerging from the cocoons of braconid primary parasites.

Eupelmus fonteia Walker

Eupelmus Fonteia Walker, 1847 : 19, ♀.

TYPE-MATERIAL. There are three female syntypes in the BMNH collection under this name. The specimens are on card points, and each is labelled 'Eupelmus fonteia Walker' by Waterhouse. I designate the first specimen in the series, labelled 'B. M. Type Hym. 5. 2283', as LECTOTYPE. Described from St John's Bluff, Florida.

REMARKS. This is *Eupelmus* as that genus is currently understood, but this species cannot be placed until the genus is revised for North America. *Eupelmus fonteia* is one of the species lacking an exserted ovipositor, the head and body are iridescent coppery black, and the antennal scape is black; the body pubescence is silvery, the femora and tibiae are yellow-brown with slight darkening at the apices of the femora and middles of the tibiae; and tarsi are white.

DISTRIBUTION. Florida.

Eupelmus lamachus Walker

Eupelmus lamachus Walker, 1847 : 20, ♀.

Type-material. There is a single specimen, mounted on a card point, in the BMNH collection labelled 'B. M. Type Hym. 5. 2284' and 'Eupelmus Lamachus Walker' in Waterhouse's hand. I designate it LECTOTYPE. It is in poor condition. Described from St John's Bluff, Florida.

Remarks. This is *Eupelmus* as the genus is currently understood, but this species cannot be placed until *Eupelmus* is revised. This is one of the thickset, large species of *Eupelmus*. It has the head and body red-coppery black (a colour that seems to occur only in Florida species). The midlegs are entirely yellow, but the other legs are yellow only beyond the coxae; the antennae are black; the compound eyes are large, and the lateral ocelli almost but not quite touch the margins of the compound eyes; the hind tibiae are not flattened and there are no visible bristles on the scutellum.

Distribution. Florida.

PERILAMPIDAE

[*Perilampus alexinus* Walker

See under Chalcididae below.]

Perilampus hyalinus Say

Perilampus hyalinus Say, 1828 : 79.
Perilampus Entellus Walker, 1843*b* : 103, ♀, ♂. **Syn. n.**

Type-material. *Perilampus hyalinus* Say. Type lost, but the identity of this species, originally described from Pennsylvania, has long been accepted on the basis of the identifications used by Smith (1912 : 34–48), Crawford (1914 : 70) and Smulyan (1936 : 380), all of which agree.

Perilampus entellus Walker. There is one female specimen, mounted on a small pin on a card, in the BMNH collection, labelled 'B. M. Type Hym. 5. 2285' and 'Perilampus Entellus' in Walker's hand. I designate it LECTOTYPE. This species was originally described from several specimens of both sexes from Ohio. The single remaining specimen runs to *hyalinus* Say in Smulyan (1936 : 372), and is in agreement with the current concept of this species.

Distribution. North America.

Perilampus lepreos Walker

Perilampus lepreos Walker, 1846 : 89.
Euperilampus lepreos (Walker) Peck, 1951 : 516.

Type-material. Missing. Described from Georgia.

Distribution. Georgia.

TORYMIDAE

Torymus aea (Walker)

Callimome Aea Walker, 1843*b* : 104, ♀.
Torymus aea (Walker) Cresson, 1887 : 237.
Torymus aeus (Walker) Peck, 1951 : 521.
Syntomaspis amelanchieris Cushman, 1918 : 82, ♀, ♂. **Syn. n.**
Torymus amelanchieris (Cushman) Peck, 1951 : 521.

TYPE-MATERIAL. *Callimome aea* Walker. There is a single female specimen, mounted on a small pin on a card, in the BMNH collection, labelled 'B. M. Type Hym. 5. 44' and 'Callimome aea Walker' by Waterhouse. There is also a locality label, 'St. John's Bluff,' added in error by someone after Walker's time; this species was described from near New York. I designate this specimen LECTOTYPE. This is the species described many years later by Cushman as *amelanchieris*.

Syntomaspis amelanchieris Cushman. Described from five females and one male from Pickens, West Virginia; the holotype female is USNM no. 20968.

DISTRIBUTION. North-eastern North America.

BIOLOGY. Milliron (1949 : 393–395) has shown that the larva of this species develops in an *Amelanchier* seed first as an external parasite on the larva of *Megastigmus amelanchieris* Cushman and, after having consumed it, becomes phytophagous and completes its development by feeding on the seed itself. This type of parasitic-phytophagous development occurs elsewhere in the Chalcidoidea (Malyshev, 1968 : 53).

Megastigmus albifrons Walker

Megastigmus albifrons Walker, 1869 : 314, ♂.

TYPE-MATERIAL. One male specimen, mounted on a card, is in the BMNH collection, labelled 'albifrons' in Walker's hand and 'B. M. Type Hym. 5.67.' I designate it LECTOTYPE. Reared in England from a pine cone collected in California. This certainly is the species currently being identified as *albifrons*.

DISTRIBUTION. South-western United States.

BIOLOGY. Develops in the seeds of *Pinus ponderosa*.

Torymus cecidomyiae (Walker)

Callimome Cecidomyiae Walker, 1844 : 15, ♀.
Torymus cecidomyiae (Walker) Cresson, 1887 : 237.
Callimome strobiloides Huber, 1927 : 40, ♀. **Syn. n.**
Torymus strobiloides (Huber) Peck, 1951 : 526.

TYPE-MATERIAL. *Callimome cecidomyiae* Walker. Two female specimens in poor condition are in the BMNH collection. Each is labelled 'Hudson's Bay; Callimome Cecidomyae Walker' by Waterhouse. I designate the second specimen, labelled 'B. M. Type Hym. 5. 2286', as LECTOTYPE. This specimen was originally on a pin; but it has been remounted on a card point. The other specimen has the thorax with the attached left forewing mounted on a card, the other fragments cemented to the locality label beneath. This is recognizably the same as Huber's species *strobiloides*.

Callimome strobiloides Huber. Described from three female specimens from Columbus, Ohio. The holotype female is USNM no. 25351.

DISTRIBUTION. Quebec, Ontario, New Hampshire, New York, Ohio, Minnesota.

BIOLOGY. Reared from midge galls on buds of *Salix*.

Torymus lissus (Walker)

Callimome lissus Walker, 1843*a* : 150, ♂.
Torymus lissus (Walker) Cresson, 1887 : 237.
Syntomaspis lissus (Walker) Ashmead, 1887 : 187.
Callimome aenea Ashmead, 1881*a* : xxxiii, ♀, ♂. **Syn. n.**
Torymus aeneus (Ashmead) Cresson, 1887 : 237.

TYPE-MATERIAL. *Callimone lissus* Walker. A single male specimen mounted on a card is in the BMNH collection, labelled 'B. M. Type Hym. 5. 2287', '1481a' and 'Callimome Lissus Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. Although the lectotype is a male, it can be placed as the species now called *aeneus* in the North American literature.

Callimone aenea Ashmead. This was described from several female and male specimens from Jacksonville, Florida; Huber (1927 : 56) designated a lectotype. Two other species are at present listed as synonyms of this one, but *Torymus* is now being revised. This restudy might result in some change in the synonymy.

DISTRIBUTION. Florida.

BIOLOGY. Emerges from galls of *Disholcaspis* on white oak.

Torymus splendidulus Dalla Torre

Callimome splendidus Walker, 1844 : 14, ♀.
Torymus splendidus (Walker) Cresson, 1887 : 237. [Homonym of *Torymus splendidus* Foerster, 1841 : 32.]
Torymus splendidulus Dalla Torre, 1898 : 313. [Replacement name.]

TYPE-MATERIAL. One female specimen mounted on a small pin on a card is in the BMNH Collection, labelled 'B. M. Type Hym. 5. 48; St. Martin's Falls' and 'Callimome splendidus Walker' by Waterhouse. I designate it LECTOTYPE. The specimen is in only fair condition, each antenna being broken off beyond f_4, the thorax distorted by the mounting pin, the ovipositor sheaths lost, but the ovipositor itself remaining.

REMARKS. This species was not recognized by Huber (1927 : 101) and it clearly is not included in his revision under some other name. It also is not included in the unpublished, but widely circulated, manuscript classification of North American *Torymus* prepared by Lienk (1951). I find no specimens of it in the USNM collection.

It has the following key characters. Stigmal vein petiolate; scutellum without cross-furrow; antennal scape pale tan, flagellum black; head and thorax dark reddish bronze-green; legs, including apices of coxae, bright yellow-tan; gaster iridescent green-bronze with a small ventral area at base yellowish; ovipositor slightly longer than gaster; propodeum with moderately rough sculpture and a prominent median carina that bifurcates near base.

DISTRIBUTION. Ontario.

Torymus theon (Walker)

Callimome theon Walker, 1843*a* : 149, ♀.
Syntomaspis theon (Walker) Ashmead, 1887*a* : 187.
Torymus theon (Walker) Peck, 1951 : 526.

TYPE-MATERIAL. There are two female specimens mounted on cards in the BMNH collection, one of which is labelled, 'B. M. Type Hym. 5. 20; 1480a St. John's Bluff' and 'Callimone Theon Walker' in Waterhouse's hand, and is designated LECTOTYPE; this specimen is cemented on its side on the mounting card, with the head detached and cemented on the card.

REMARKS. This species cannot at present be placed. It does not run in Huber (1927) or in Lienk (1951), and I do not find specimens of it in the USNM collection. However, this is a distinctive species that should be possible to place. The antennal scape is yellow, the flagellum black; all tibiae are yellow, legs otherwise dark metallic green; thorax and gaster dark metallic green with silvery pubescence; stigmal vein of forewing subsessile and with three rows of wing bristles radiating from its apex; all wing veins yellow; scutellum with a deep cross-furrow, space posterior to this furrow shagreened; dorsum of thorax minutely shagreened, with interspersed short bristles that arise from obscure pits; propodeum lightly shagreened, almost smooth; ovipositor as long as body. The thorax is relatively thickset, with a subacute, longitudinal ridge on the posterior third of each lobe of the mesoscutum.

DISTRIBUTION. Florida.

ORMYRIDAE

Ormyrus labotus Walker

Ormyrus labotus Walker, 1843*a* : 148, ♀, ♂.
Ormyrus andricus Ashmead, 1886 : 128, ♀. **Syn. n.**

TYPE-MATERIAL. *Ormyrus labotus* Walker. There are one female and two male specimens, mounted on cards, in the BMNH collection. The female is labelled 'B. M. Type Hym. 5. 63; 1479a; St. John's Bluff' and 'Ormyrus Labotus Walker' by Waterhouse; I designate it LECTOTYPE. The two males are labelled 'Co-type', one '1479b; St. John's Bluff', the other '1479c; St. John's Bluff.' This species is clearly the same as *andricus* Ashmead.

Ormyrus andricus Ashmead. Described from one female specimen from Jacksonville, Florida. The holotype is USNM no. 41108.

Distribution. Florida. There are references in the literature to *labotus* as occurring in Kansas and Maryland, but the identifications on which those records were based were made without reference to Walker's type. It is not possible now to locate the specimens involved, so those records cannot be verified. There are many specimens of *labotus* in the USNM collection, but all are from Florida.

Biology. Emerges from galls of *Callirhytis* on white oak.

PTEROMALIDAE

Pachyneuron albutius Walker

Pachynevron albutius Walker, 1843*a* : 158, ♀.
Pachyneuron Albutius Walker, 1846 : 35. [Correction of spelling of generic name.]
Spalangia syrphi Ashmead, 1881*a* : 171, ♀, ♂. **Syn. n.**
Pachyneuron syrphi (Ashmead) Ashmead, 1887*a* : 193.
Pachyneuron allograptae Ashmead, 1887*b* : 15. ♀, ♂. **Syn. n.**

Type-material. *Pachyneuron albutius* Walker. There is a single female specimen, mounted on a card point, in the BMNH collection, labelled 'B.M. Type Hym. 5. 860; 1492a; St. John's Bluff' and 'Pachyneuron Albutius Walker' by Waterhouse. I designate it LECTOTYPE. This specimen is in poor condition, but it is recognizable as the common Nearctic *Pachyneuron* parasitic on syrphid flies.

Spalangia syrphi Ashmead. This was originally described from five female and two male specimens of which only two female syntypes are now in the USNM collection. One female, labelled 'Jacksonville, Fla., Collection Ashmead; Pachyneuron syrphi Ashm.', is designated LECTOTYPE and is USNM Type no. 2823.

Pachyneuron allograptae Ashmead. This species was described from 'several specimens'. There are now five female syntypes in the USNM collection; one, labelled 'Jacksonville, Fla., Collection Ashmead; Pachyneuron allograptae Ashm. ♀', is designated LECTOTYPE and is USNM no. 2847.

Distribution. North America, Central America, West Indies.

Biology. This species is commonly reared as a primary parasite of syrphid flies; see Peck (1963 : 613) for a host list.

Pteromalus cassotis Walker

Pteromalus cassotis Walker, 1847 : 393, ♀.
Pteromalus archippi Howard, 1889 : 1872, 1891, ♀. **Syn. n.**

Type-material. *Pteromalus cassotis* Walker. There are three female specimens, on card points, in the BMNH collection, labelled 'B.M. Type Hym. 5. 754a, b, c.' Each is labelled 'Pteromalus cassotis Walker' by Waterhouse. I designate specimen

754c LECTOTYPE. Described from St John's Bluff, Florida. This species is the same as the one currently being called *archippi*.

Pteromalus archippi Howard. This was described from an unspecified number of female specimens from Eastern North America; it is now represented by three syntypes in the USNM. One of these, labelled 'Ac. Cat. 815; Ag. Coll. Mich.; 9–13–87; Pteromalus archippi ♀ Type How.; U. S. N. M. No. 2675', is designated LECTOTYPE.

DISTRIBUTION. North America.

BIOLOGY. Most commonly a parasite of nymphalids, but has also been reared from pierids and papilionids.

Neocatolaccus cratylus (Walker) comb. n.

Pteromalus Cratylus Walker, 1847 : 392, ♀.

TYPE-MATERIAL. There is a single female specimen mounted on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 753' and 'Pteromalus Cratylus Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. The lectotype is fragmentary, so it probably never can be placed specifically, but it is a *Neocatolaccus*.

DISTRIBUTION. Florida.

Capellia cyrene (Walker) comb. n.

Micromelus cyrene Walker, 1843*a* : 154, ♀.
Boeotomus cyrene (Walker) Cresson, 1887 : 242.
Callitula cyrene (Walker) Peck, 1951 : 548.
Pseudomicromelus cyrene (Walker) Burks, 1958 : 76.

TYPE-MATERIAL. There is a single female specimen mounted on a card in the BMNH collection, labelled 'B.M. Type Hym. 5. 686; 1487a; St. John's Bluff' and 'Micromelus Cyrene Walker' by Waterhouse. I designate it LECTOTYPE. This specimen was originally cemented on its side on a card in such a way that study of it was virtually impossible. Dr Bouček successfully remounted it on a card with the wings spread and the dorsal side up, after which delicate operation its characters were clearly evident. He and I agree that this belongs in the genus *Capellia* Delucchi, close to, but distinct from, *rufiventris* (Girault). There is a specimen of *cyrene* in the USNM collection, taken at Jacksonville, Fla., by Ashmead many years ago.

DISTRIBUTION. Florida.

Callitula cyrnus (Walker) comb. n.

Lampretatus cyrnus Walker, 1843*a* : 157.
Lamprotatus cyrnus (Walker) Walker, 1846 : 32.
Cryptoprymnus illinoensis Ashmead, 1896 : 228, ♀. **Syn. n.**
Callitula illinoensis (Ashmead) Peck, 1951 : 548.

Type-material. *Lampretatus cyrnus* Walker. There are eight syntypes mounted on card points in the BMNH collection, one of which is labelled 'B.M. Type Hym. 5. 820; St. John's Bluff' and 'Lamprotatus Cyrnus Walker' by Waterhouse, and is designated LECTOTYPE. The other seven specimens, all labelled as 'Cotypes' of this species, are not congeneric with the lectotype. The lectotype is recognizable as the male of the rather rare North American species described by Ashmead as *illinoensis*.

Cryptoprymnus illinoensis Ashmead. This was described from one female specimen from Algonquin, Illinois. The holotype is USNM no. 26035.

Distribution. Maryland south to Florida west to Illinois.

Biology. This species has been reared from the Hessian fly, *Mayetiola destructor* (Say), and other small Diptera associated with grasses.

Habrocytus damo (Walker)

Pteromalus Damo Walker, 1847 : 395, ♀.
Habrocytus damo (Walker) Graham, 1969 : 561.

Type-material. There is one female specimen mounted on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 759' and 'Pteromalus Damo Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This lectotype specimen lacks a head, and the legs and wings are entangled in the mounting medium. I agree with Graham's generic placement of it; it cannot be placed specifically until the North American species of *Habrocytus* are revised.

Distribution. Florida.

Trichomalus deiphon (Walker) **comb. n.**

Metopon deiphon Walker, 1843*a* : 161, ♀.
Psilocera deiphon (Walker) Walker, 1846 : 36.

Type-material. There is one female specimen mounted on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 693; 1495a; St. John's Bluff' and 'Psilocera Deiphon Walker' by Waterhouse. I designate it LECTOTYPE. Graham (1969 : 467) examined this specimen and excluded it from *Psilocera* and was of the opinion that it was near *Spaniopus* Walker or *Trichomalus* Thomson. I believe it belongs in *Trichomalus*. There are no specimens of this species in the USNM collection.

Distribution. Florida.

Seladerma diaeus (Walker)

Lamprotatus Diaeus Walker, 1844 : 16, ♀.
Seladerma diaeus (Walker) Graham, 1969 : 203.

Type-material. There is one female specimen on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 822; 44 17; Martin's Falls; Hudson's Bay; Bred from pupa of Vanessa Cardui' and 'Lamprotatus Diaeus Walker' by Waterhouse. Graham (1969 : 203) designated a lectotype for this species and transferred it to *Seladerma* Walker.

Distribution. Ontario.

Biology. Graham (1969 : 203) has shown that the host label on the type of this species is erroneous and should have referred to *Pteromalus puparum* (L.) instead. His opinion is that the true host of *diaeus* is probably an agromyzid.

Pteromalus doryssus Walker

Pteromalus doryssus Walker, 1847 : 395, ♀, ♂.

Type-material. Missing. Described from St John's Bluff, Florida.

Distribution. Florida.

Zatropis dymnus (Walker) **comb. n.**

Pteromalus Dymnus Walker, 1847 : 397, ♀.

Type-material. There is one female specimen on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 760' and 'Pteromalus Dymnus Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This lectotype specimen lacks a head, so its specific placement will probably never be possible, but it belongs in the genus *Zatropis* Crawford.

Distribution. Florida.

Norbanus dysaules Walker

Norbanus dysaules Walker, 1843*a* : 159, ♂, ♀.

Type-material. There are ten female and five male specimens, all on card points, in the BMNH collection. They are labelled 'B.M. Type Hym. 5. 694' and each bears the Waterhouse labels 'St. John's Bluff; Norbanus Dysaules Walker.' The female specimen bearing the number 1493a is designated LECTOTYPE. There is an additional female paralectotype in the USNM, received through exchange in 1949.

Remarks. This species, and through it, the genus *Norbanus*, has long been correctly placed in the North American literature. Graham (1969 : 438) examined the type-series of *dysaules*.

Distribution. Florida.

Habrocytus epicles (Walker)

Pteromalus Epicles Walker, 1847 : 394. ♀.
Habrocytus epicles (Walker) Graham, 1969 : 561.

Type-material. There is one female specimen mounted on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 758' and 'Pteromalus epicles Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. I agree with Graham's generic assignment for this species, but it cannot be placed specifically until the North American species of *Habrocytus* are revised.

Distribution. Florida.

Pteromalus eryx Walker

Pteromalus Eryx Walker, 1847 : 397, ♂.

Type-material. There is one male specimen mounted on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 761' and 'Pteromalus Eryx Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This lectotype specimen is in very poor condition, lacking the head and anterior legs. It obviously is not *Pteromalus*, as that genus is currently defined, but neither Dr Bouček nor I can place it. I made an exhaustive search through the USNM collection, but did not find a pteromalid male that seemed likely to be the same as this one. This species should be left unplaced.

Distribution. Florida.

Trichomalus eurypon (Walker) **comb. n.**

Pteromalus eurypon Walker, 1847 : 398, ♀.

Type-material. There is one female specimen on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 762' and 'Pteromalus Eurypon Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. The single specimen is in poor condition, with all wings and the apex of the abdomen missing. It should be placed in the genus *Trichomalus* Thomson, but it is doubtful that it can be placed specifically, because of its fragmentary condition.

Distribution. Florida.

Pteromalus euthymus Walker

Pteromalus euthymus Walker, 1847 : 393, ♂.

Type-material. Missing. Described from St John's Bluff, Florida.

Distribution. Florida.

Trichomalus habis (Walker) **comb. n.**

Lampretatus habis Walker, 1843*a* : 155, ♀.
Lamprotatus habis (Walker) Walker, 1846 : 32.

Type-material. There is one female specimen mounted on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 818; 1488a; St. John's Bluff' and 'Lamprotatus Habis Walker' by Waterhouse. I designate it LECTOTYPE. The specimen is almost intact, but the wings are cemented together. This belongs in *Trichomalus* Thomson; I find no specimens of it in the USNM collection.

Distribution. Florida.

Zatropis hermeas (Walker) **comb. n.**

Pteromalus hermeas Walker, 1847 : 394, ♀.

Type-material. There is one female specimen on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 756' and 'Pteromalus Hermeas Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This lectotype specimen is badly broken, but the fragments are cemented to the card point. It can be placed in the genus *Zatropis* Crawford, but its specific placement is equivocal. It may be the same as the species now being called *Z. incertus* (Ashmead, 1893 : 186).

Distribution. Florida.

Acaenacis lausus (Walker) **comb. n.**

Pteromalus Lausus Walker, 1847 : 392, ♀.
Pteromalus Dipsas Walker, 1847 : 394, ♂. **Syn. n.**
Semiotellus ficigerae Ashmead, 1885 : xvii, ♀, ♂. **Syn. n.**
Acaenacis ficigerae (Ashmead) Girault, 1917 : 1a.

Type-material. *Pteromalus lausus* Walker. There are two female specimens on card points in the BMNH collection, labelled 'B.M. Type Hym. 5. 752a, 752b' and 'Pteromalus Lausus Walker' by Waterhouse. I designate specimen 752a as LECTOTYPE. Described from St John's Bluff, Florida.

Pteromalus dipsas Walker. There is one male specimen on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 755' and 'Pteromalus Dipsas Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This is the male that should be associated with the female described as *lausus*.

Semiotellus ficigerae Ashmead. This species was described from an unspecified number of male and female specimens; there are now four female and three male syntypes in the USNM collection. One female labelled 'Jacksonville, Fla., Collection Ashmead,' is designated LECTOTYPE. This species agrees in both sexes with *lausus* and *dipsas*. Girault (1917 : 1a) designated *ficigerae* as type-species of his genus *Acaenacis*.

Distribution. Florida.

Biology. Has been reared from a *Disholcaspis* gall on white oak.

Mesopolobus oeax (Walker) **comb. n.**

Pteromalus oeax Walker, 1847 : 395, ♀.

TYPE-MATERIAL. There is one female specimen on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 763' and 'Pteromalus Oeax Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. The lone specimen is badly preserved, but it is a species of *Mesopolobus* Westwood. The species of that genus need to be revised for North America.

DISTRIBUTION. Florida.

Zatropis orontas (Walker) **comb. n.**

Pteromalus Orontas Walker, 1847 : 396, ♀.
Meraporus bruchivorus Ashmead, 1893 : 161, ♀, ♂. **Syn. n.**
Zatropis bruchivorus (Ashmead) Crawford, 1921 : 171.

TYPE-MATERIAL. *Pteromalus orontas* Walker. There are three female specimens on card points in the BMNH collection, labelled 'B.M. Type Hym. 5. 766a, b, c' and 'Pteromalus Orontas Walker' by Waterhouse. I designate specimen 766b LECTOTYPE. Described from St John's Bluff, Florida. The specimens labelled 766a and 766c are not congeneric with the lectotype. This lectotype is the same as the species now being called *Zatropis bruchivorus* (Ashmead) in the North American literature.

Meraporus bruchivorus Ashmead. This was described from an unspecified number of female and male specimens from localities in Kansas, Indiana, and Iowa; there are now 6 ♀, 4 ♂ syntypes in the USNM. I designate a female specimen labelled 'Nov.; Riley Co., Ks., Marlatt; Meraporus bruchivorus ♀ Ashm.,' as LECTOTYPE.

DISTRIBUTION. Maryland south to Florida, west to Iowa, Kansas, Arizona and California; Sonora, Mexico.

BIOLOGY. Has been reared from *Acanthoscelides submuticus* (Sharp) and other bruchids.

Norbanus pisius Walker

Norbanus pisius Walker, 1843*a* : 160, ♀.
Pteromalus Hybreas Walker, 1847 : 397, ♀. **Syn. n.**

TYPE-MATERIAL. *Norbanus pisius* Walker. There is one female specimen on a card point, with broken parts mounted separately on a card, in the BMNH collection; it is labelled 'B.M. Type Hym. 5. 695; 1494a; St. John's Bluff' and 'Norbanus Pisius Walker' by Waterhouse. I designate it LECTOTYPE. This species is correctly identified in the USNM collection.

Pteromalus hybreas Walker. There is one badly broken female specimen on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 764' and 'Pteromalus Hybraeas Walker' by Waterhouse. I designate it LECTOTYPE.

Described from St John's Bluff, Florida; it is a *Norbanus*, and the remaining parts all agree with *pisius*.

Distribution. Florida.

Biology. There is a specimen of *pisius* in the USNM collection from Clewiston, Florida, that was reared from *Euscepes porcellus* Boheman, a sweet potato weevil.

Lamprotatus salemus (Walker)

Lampretatus salemus Walker, 1843*a* : 156, ♀.
Lamprotatus Salemus (Walker) Walker, 1846 : 32.

Type-material. Only a female gaster and one leg (which may not belong together) remain in the BMNH collection, labelled 'B.M. Type Hym. 5. 819; 1489a; St. John's Bluff' and 'Lamprotatus Salemus Walker' by Waterhouse. I have not designated this as lectotype, because a better specimen might eventually be found. This species should be unplaced, at least for the present.

Distribution. Florida.

Zatropis timaea (Walker) **comb. n.**

Pteromalus timaea Walker, 1847 : 396, ♀.
Habrocytus timaea (Walker) Peck, 1951 : 563.

Type-material. There is one female specimen on a card point in the BMNH collection, labelled 'B. M. Type Hym. 5. 757' and 'Pteromalus Timaea Walker' by Waterhouse. I designate it LECTOTYPE. Described from St John's Bluff, Florida. This clearly is a species of *Zatropis* Crawford. There is in the USNM collection a specimen labelled '*Habrocytus timaea* Walk.' by A. A. Girault. That probably was the basis for the transfer of this species to *Habrocytus*, but Girault's identification was made without reference to Walker's type.

Distribution. Florida.

Cyrtogaster trypherus (Walker) **comb. n.**

Lampretatus trypherus Walker, 1843*a* : 158, '♀' = ♂.
Lamprotatus Trypherus (Walker) Walker, 1846 : 32.
Cyrtogaster glasgowi Crawford, 1914 : 36, ♀, ♂. **Syn. n.**

Type-material. *Lampretatus trypherus* Walker. There is one male specimen on a card point in the BMNH collection, labelled 'B.M. Type Hym. 5. 821; 1491a; St. John's Bluff' and 'Lamprotatus Trypherus Walker' by Waterhouse. I designate it LECTOTYPE. This specimen shows the distinctive characters of the male of the species currently being identified as *Cyrtogaster glasgowi* Crawford. It has enormous maxillae, the propodeum has lineolate-rugose sculpture, and the legs are bright tan in contrast with the dark metallic green body. No other known North American male pteromalid is similar.

Cyrtogaster glasgowi Crawford. This was described from two female and one male specimens from Urbana, Illinois; the designated female holotype is USNM No. 18246.

Distribution. Delaware south to Florida west to Missouri and California.

Biology. Has been reared from the pupae of an ephydrid, *Brachydeutra argentata* (Walker), and of a *Drosophila* sp. It also is collected fairly often in alfalfa fields.

EURYTOMIDAE

Eurytoma abatos Walker

Eurytoma abatos Walker, 1843*a* : 152, ♀.
Eurytoma crassineura Ashmead, 1894 : 324, ♀, ♂. **Syn. n.**

Type-material. *Eurytoma abatos* Walker. One female specimen, mounted on a card point, is in the BMNH collection, labelled 'B.M. Type Hym. 5. 579; 1484a; St. John's Bluff' and 'Eurytoma Abatos Walker' by Waterhouse, also 'abatos type' in Walker's hand. I designate it LECTOTYPE. This is a small, light coloured specimen of the species currently called *Eurytoma crassineura* Ashmead in the North American literature. I am indebted to Dr Bouček for sending me additional information about the type of *abatos* after I had returned to Washington.

Eurytoma crassineura Ashmead. Bugbee (1967 : 500) has designated a ♀ lectotype for this species, which was described from Morgantown, West Virginia. It is in the USNM, type no. 25508.

Distribution. Occurs in southern Canada and throughout the United States.

Biology. A primary parasite of scolytid beetles.

Eurytoma cretheis Walker

Eurytoma cretheis Walker, 1843*a* : 150, ♀.

Type-material. A single female specimen, on a card point, is in the BMNH collection, labelled 'B.M. Type Hym. 5. 583; 1482a; St. John's Bluff' and 'Decatoma Cretheis Walker' by Waterhouse, and 'cretheis type' in Walker's hand. I designate it LECTOTYPE. The specimen is damaged. The head, antennae, both forewings, and one hindwing are missing. This fragmentary type cannot be placed to species.

Distribution. Florida.

Eurytoma hecale Walker

Eurytoma hecale Walker, 1843*a* : 151, ♀.
Eurytoma auriceps Walsh, 1870 : 299, ♀, ♂. **Syn. n.**

Type-material. *Eurytoma hecale* Walker. There are two female specimens under this name in the BMNH collection, one of which is mounted on a card point, and labelled 'B.M. Type Hym. 5. 580; 1483a; St. John's Bluff' and 'Eurytoma hecale Walker' by Waterhouse, also 'hecale type' in Walker's hand; I designate it LECTOTYPE. The other specimen is a different species, so labelled in 1955 by G. J. Kerrich. The lectotype is recognizably the same as the species currently being identified as *E. auriceps* Walsh in North America.

Eurytoma auriceps Walsh. The types of this species, described from Illinois, were destroyed in the Chicago fire of 1871 (Burks, 1953 : 16). Bugbee (1967 : 479) has recharacterized this species in conformity with the current identification of it; his material is in the USNM.

DISTRIBUTION. Eastern North America.

BIOLOGY. A parasite of cynipid gall makers on white oaks.

Harmolita iphis (Walker) **comb. n.**

Eurytoma iphis Walker, 1846 : 85, ♀.

TYPE-MATERIAL. One female specimen, on a card point, is in the BMNH collection, labelled 'B.M. Type Hym. 5. 2288' and '1529a; St. John's Bluff' and 'Eurytoma Iphis Walker' by Waterhouse. I designate it LECTOTYPE.

DISTRIBUTION. Florida.

Eurytomocharis pythes (Walker) **comb. n.**

Eurytoma pythes Walker, 1843*a* : 154, ♀.

TYPE-MATERIAL. One female specimen, mounted on a card point, is in the BMNH collection, labelled 'B.M. Type Hym. 5. 581; 1486a; St. John's Bluff' and 'Eurytoma Pythes Walker' by Waterhouse. I designate it LECTOTYPE.

DISTRIBUTION. Florida.

Tenuipetiolus teredon (Walker) **comb. n.**

Eurytoma teredon Walker, 1843*a* : 153, ♀, ♂.
Eurytoma albipes Ashmead, 1881*b* : xxxi, ♀, ♂. **Syn. n.**
Tenuipetiolus albipes (Ashmead) Bugbee, 1951 : 37.

TYPE-MATERIAL. *Eurytoma teredon* Walker. There are one female and three male specimens, all on card points, in the BMNH collection. I designate the female as LECTOTYPE. It is labelled 'B.M. Type Hym. 5. 582' and 'Cotype; 1485e; St. John's Bluff' and 'Eurytoma Teredon Walker' by Waterhouse. It should be noted that there is considerable antigeny in this species, but these quite dissimilar males and females are conspecific and were correctly associated by Walker. This species is the distinctive one Bugbee (1951 : 37) selected as type-species for his genus *Tenuipetiolus*.

Eurytoma albipes Ashmead. This species was described from an unspecified number of female and male specimens. At present only one broken female specimen of it can be found in the USNM collection. I designate it LECTOTYPE. It is labelled 'Jacksonville, Fla.; Collection Ashmead; Type no. 2822 U.S.N.M.; Eurytoma albipes Ashm.'

Distribution. New York south to Florida, west to Illinois, Missouri, Texas.

Biology. A parasite of cecidomyiid and cynipid gall makers.

CHALCIDIDAE

Brachymeria alexinus (Walker) comb. n.

Perilampus Alexinus Walker, 1846 : 89.

Type-material. There are two male specimens, each mounted on a small pin on a card, in the BMNH collection. One bears a label, added long after Walker's time, which states in Latin 'True Chalcis, without hind legs—Biró'. This specimen, also labelled 'B.M. Type Hym. 5. 2289', is designated LECTOTYPE. The second specimen also lacking the hind legs, is labelled 'Brachymeria sp., G. J. Kerrich, 1958.' Species described from Georgia.

Remarks. It is obvious that the hind legs, with their enlarged femora, were missing from these specimens at the time Walker described *alexinus*. Had they been present, he most certainly would not have placed the species in *Perilampus*. The original description, however, has never sounded very much like that of a perilampid; my guess had been that *alexinus* was some sort of eurytomid. When I saw the types, however, I recognized them as a well known *Brachymeria* secondary parasite of grasshoppers, one of Holarctic distribution and one long known in the world literature as *Brachymeria coloradensis* (Cresson, 1872). If necessary, I shall request the International Commission to suppress Walker's name for this species in favour of Cresson's name. The name *coloradensis* has been used in manuals or revisions published in Japan (Habu, 1960 : 159; 1962 : 27), Russia (Nikolskaya, 1960 : 85), Czechoslovakia (Bouček, 1957 : 210), France (Steffan, 1959 : 42) and North America (Burks, 1960 : 250).

Haltichella onatas (Walker)

Hockeria onatas Walker, 1843a : 146, ♀.
Haltichella onatas (Walker) Walker, 1846 : 7.
Conura Onatas (Walker) Walker, 1871 : 41.
Haltichella longicornis Ashmead, 1887*a* : 185, ♀. **Syn. n.**

Type-material. *Hockeria onatas* Walker. There are three female specimens, mounted on card points, in the BMNH collection. One is labelled 'B.M. Type Hym. 5. 553; 1477a; St. John's Bluff' and 'Hockeria Onatas Walker' by Waterhouse, and I designate it LECTOTYPE. One of the other two, labelled '1477b' is fragmentary; the other, labelled '1477e', is virtually intact. This is the species currently being identified in North America as *Haltichella longicornis* Ashmead.

Haltichella longicornis Ashmead. Described from one female specimen from Jacksonville, Florida, USNM Holotype no. 20666.

DISTRIBUTION. South-eastern United States.

BIOLOGY. A primary parasite of moths of the families Oecophoridae and Gelechiidae.

Spilochalcis side (Walker)

Smiera side Walker, 1843*a* : 145, ♀.
Smicra torvina Cresson, 1872 : 40. ♀.
Spilochalcis side (Walker) Burks, 1940 : 336.

TYPE-MATERIAL. One female specimen, mounted on a card, is in the BMNH collection, labelled 'B.M. Hym. 5. 481; 1476a; St. John's Bluff' and 'Smicra Side Walker' by Waterhouse, also 'Side' in Walker's hand. I designate it LECTOTYPE.

DISTRIBUTION. Throughout southern Canada and United States.

BIOLOGY. Has a lengthy host list; see Peck (1963 : 888).

Spilochalcis transitiva (Walker)

Smiera transitiva Walker, 1862 : 371, ♀.
Spilochalcis transitiva (Walker) Howard, 1897 : 130.

TYPE-MATERIAL. One female specimen mounted on a small pin on a card is in the BMNH collection. It is labelled 'B.M. Type Hym. 5. 537; 43–15; North America' and 'Smiera transitiva Walker' by Waterhouse, also 'Tetrasmicra transitiva' in an unknown hand. I designate it LECTOTYPE. The current application of the name is correct. Described from Eastern Florida.

DISTRIBUTION. Georgia, Florida, Texas, Arizona; Mexico, Central America; Cuba, Grenada, Jamaica.

BIOLOGY. A primary parasite of the pierid butterfly, *Catopsilia eubule* (L.).

Haltichella xanticles (Walker)

Hockeria xanticles Walker, 1843*a* : 147, ♀.
Haltichella xanticles (Walker) Walker, 1846 : 7.
Conura Xanticles (Walker) Walker, 1871 : 41.
Haltichella americana Howard, 1885 : 36, ♀. **Syn. n.**

TYPE-MATERIAL. *Hockeria xanticles* Walker. There are three female specimens on card points in the BMNH collection. One is labelled 'B.M. Type Hym. 5. 554; 1478a; St. John's Bluff' and 'Hockeria Xanticles Walker' by Waterhouse. Another is labelled, 'Cotype; 1478b'; the third is labelled 'Cotype; 1478c.' The specimen labelled '1478c' is designated LECTOTYPE. This species is being correctly identified at present in North American literature, and Howard's *americana* is the same.

Haltichella americana Howard. Described from two female syntypes which are, unfortunately, not conspecific. One, labelled 'Washington, D. C., 2. 7; Type

No. 2627 U. S. N. M.; Haltichella americana How. ms.', is the one on which the name *americana* has always been based. I designate it LECTOTYPE. The other syntype has the same labels, plus a 'Schwarz Coll.' label. It is a specimen of *Haltichella onatas* (Walker).

Distribution. Quebec south to Florida west to Saskatchewan and Texas.

Biology. This is a primary parasite of small moths of the families Olethreutidae, Coleophoridae, Lyonetiidae. It also has been reared as a secondary parasite, emerging from the cocoons of *Apanteles*.

LEUCOSPIDIDAE

Leucospis affinis Say

Leucospis affinis Say, 1824 : 326, ♀, ♂.
Leucospis Canadensis Walker, 1860 : 17, ♂. [Synonymized by Cresson, 1872 : 32.]

Type-material. *Leucospis affinis* Say. Type lost, but the identity of this species has long been accepted in North American literature on the basis of the original description and the redescription of Cresson (1872 : 32).

Leucospis canadensis Walker. There is one male specimen mounted on a small pin on a card in the BMNH collection. It is labelled 'B.M. Type Hym. 5. 91; 59. 13 ♂; Canada; Pres. by W. S. M. D'Urban; 75 C. H.; 56. 1859–130' and 'Leucospis canadensis Walker' by Waterhouse, also 'Leucospis affinis Say ♂, J. Waterston det.' I designate it LECTOTYPE. Both antennae are broken off beyond the pedicel, but otherwise this is an intact male specimen of the form currently being identified as *affinis affinis* Say in eastern North America. There is a Floridian subspecies that differs.

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21. CROSSKEY, R. W. A Conspectus of the Tachinidae (Diptera) of Australia, including keys to the supraspecific taxa and taxonomic and host catalogues. Pp. 221: 95 text-figures. December, 1973. £9.55.

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AN ILLUSTRATED LIST OF THE TYPE-SPECIMENS OF THE HELICONIINAE (LEPIDOPTERA : NYMPHALIDAE) IN THE BRITISH MUSEUM (NATURAL HISTORY)

P. R. ACKERY
AND
R. L. SMILES

BULLETIN OF
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ENTOMOLOGY Vol. 32 No. 5
LONDON : 1976

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Pp. 171–214; 39 *Plates*

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SYNOPSIS

A list is given of the type-specimens of the 401 nominal species, subspecies and infrasubspecific forms, currently placed in the subfamily Heliconiinae, represented by type-material in the British Museum (Natural History). A specimen from the type-series of each taxon is illustrated at two-thirds natural size, the figures being arranged systematically.

INTRODUCTION

The Heliconiinae comprise some seventy species, but such is the extreme variation in pattern within many of them that a multitude of varietal forms have been described; about half the names involved are represented by type-material in the British Museum (Natural History) (BMNH). Some of the species show quite exceptional variation, although individual patterns are often constant within large, well-defined geographical areas. However, where these forms meet there are areas of transition, sometimes less than 50 kilometres wide (Turner, 1971), in which there is extensive mixing of pattern elements. It was often from these regions, usually the more accessible parts of tropical South America, that collectors sent material in the past. Many of the forms described by Joicey & Kaye (1917; 1919) originated from such a transitional zone in French Guiana.

Early authors during the nineteenth century usually described these transitional forms and subspecies as distinct species. The most notable attempts at a rationalization of this situation are to be found in the works of Stichel & Riffarth (1905) and Eltringham (1916). More recently Emsley (1963; 1964; 1965) completed his studies which have provided the basis of much of the current work being carried out on the heliconiines.

Some outline of the principal authors whose type-material is deposited in the BMHN is probably useful. As might be expected, types of such authors as Bates, Butler, Hewitson and Joicey are to be found, but in addition, perhaps unexpectedly, type-specimens of many major continental authors are present. A brief outline is given below of how some of these specimens came to be housed in the BMNH collections.

Fabricius, J. C. (1745–1808).

There is only one heliconiine type-specimen of Fabricius to be found in the BMNH; that is a single male syntype of *Papilio phyllis* which is housed in the collection of Sir Joseph Banks (1743–1820). This collection came to the museum from the Linnean Society and is still retained as a separate entity, none of the material having been incorporated in the main series.

Cramer, P. (–1779) and Stoll, C. (–1795).

The question of the authenticity of the type-material of these authors is dealt with by Vane-Wright (1975). The probable heliconiine types are here figured on a separate plate (Pl. 39) and although none agree perfectly with the original illustrations of Cramer and Stoll, there seems to be little doubt that their paintings are considerably stylized. Certainly the material is contemporary, the names of the collectors, van Lennep and van der Capellen, appearing in an 'Acknowledgment List' in Cramer's *De Uitlandsche Kapellen*. The material passed through the Felder collection and the Rothschild Bequest to the BMNH collection.

Felder, C. (1814–1894) and Felder, R. (1842–1871).

Many of the taxa described by these authors are based in part or in entirety on specimens to be found in the Felder collection. However, sometimes the type-material is said to be housed in the 'Musei Caes. Viennes'. The latter is now in the Naturhistorisches Museum, Vienna, but the Felder collection was obtained by Lord Lionel Walter Rothschild and passed to the BMNH through the Rothschild Bequest.

Oberthür, C. (1845–1924) and Boisduval, J. B. A. D. (1799–1879).

The type-specimens of the forms described by both these authors were normally to be found in their own collections. That of Boisduval was obtained by Charles Oberthür and when his collection was sold most of the heliconiine butterflies with the exception of *Heliconius* were purchased by the BMNH. The *Heliconius* passed initially into the collection of Mr John Levick, but after his death also came to the BMNH.

Neustetter, H. (–1958).

Type-specimens of many forms described by Neustetter were housed in the collection of J. J. Joicey and passed into the BMNH collections through the Joicey Bequest. Details of further Neustetter types are included by Holzinger &

Holzinger (1974) in their catalogue of the Heliconiine type-specimens deposited in the Naturhistorisches Museum, Vienna (NM, Vienna).

RIFFARTH, H. (1860–1908).

The *Heliconius* collection of Herr Heinrich Riffarth was acquired by Mr J. J. Joicey in 1919 and was obtained by the BMNH in the Joicey Bequest. All the type-specimens normally bear a characteristic pink 'Original' type label.

NIEPELT, W. (1862–1936).

Niepelt was an insect dealer and apparently sold many type-specimens to various collectors. The major sources of his material in the Museum collections are the Adams Bequest, Joicey Bequest and Rothschild Bequest. Many of his type-specimens bear 'Original' labels of identical design to those found on Riffarth specimens, but others, apparently equally authentic, do not. Perhaps some of his type-specimens should only tentatively be considered valid. Certainly there are instances where the commercial zeal of some dealers outstripped their taxonomic integrity!

STICHEL, H. (1862–1936).

The two main sources of Stichel type-material are the Joicey Bequest and the Rothschild Bequest. The former appears to have originated from the Riffarth collection and generally each specimen bears an 'Original' label of the usual Riffarth pattern whereas those from the Rothschild Bequest normally carry a characteristic dark red 'Typus' label.

KAYE, W. J. (1875–1967).

Although the museum collection is rich in type-material of the forms described jointly by Joicey and Kaye, there are very few authentic Kaye types. Rarely the occasional specimen has been found, but the great bulk of the Kaye collection was purchased by the Allyn Museum of Entomology, Sarasota, Florida.

In this present work the taxa are listed alphabetically, with a reference to the original description together with the original status and combination. The type category and the number of type-specimens are given along with the data quoted directly from the labels beneath the specimens, the extent of each label being indicated by the sign '/'. Metric equivalents are included where necessary for linear measurements quoted from data labels. In addition to the locality information, any data pertaining to the history of the specimens are given. Such supplementary labels are often useful when the authenticity of the type-material may be open to doubt. In each case the current status and combination reflects the opinion of Professor K. S. Brown (pers. comm., 1974) which, in some cases, is not that of the authors (e.g. Vane-Wright, Ackery & Smiles, 1975). Where the data on the labels do not appear to correspond with the published data, the latter are also quoted. A reference is given to any noted lectotype designation.

The preparation of this work has been greatly assisted by Professor Keith S. Brown Jr, São Paulo, who studied the Heliconiinae collection at the BMNH during a visit sponsored by the Conselho Nacional de Pesquisas, Brazil and the Royal Society (London). Professor Brown has generously advised the authors during all stages of the final preparation of the manuscript. We also wish to thank Mr R. I. Vane-Wright for his help and encouragement during the preparation of this work. For the photographs, we are grateful to Mr P. V. York, who undertook the arduous task of photographing the specimens, and to Mr P. J. Green for his willing cooperation.

A LIST OF THE TYPE-SPECIMENS OF THE HELICONIINAE IN THE BRITISH MUSEUM (NATURAL HISTORY)

acacetes Hewitson, 1869*b* : 22 (as sp. of *Eueides*). 3 ♂, 4 ♀ syntypes. Ecuador. Hewitson Coll. 79. 69. [Pl. 3, fig. 34.]
Currently placed as a subspecies of *Eueides lampeto* Bates.

adonis Riffarth, 1907*b* : 507 (as form of *Heliconius batesi plesseni*). 2 ♂, 1 ♀ syntypes. Original. 1 ♂, Pastaza sup., Ecuador, Oct–Dez. 06. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Rothschild Bequest, B.M. 1939–1. 1 ♀, Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 19, fig. 197.]
Currently placed as a transitional form between *Heliconius melpomene plesseni* Riffarth and *Heliconius melpomene aglaope* Felder & Felder.

adusta Stichel, 1903 : 11 (as ab. of *Eueides cleobaea zorcaon*). 1 ♂, 2 ♀ syntypes. 1 ♂, Panama, Bugaba, e. c. H. Stichel. / Typus / Rothschild Bequest. B. M. 1939–1. 1 ♀, Honduras. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♀, Mexico, Vera Cruz, e. c. H. Stichel. / Typus. [P. 5, fig. 48.]
Currently placed as a form of *Eueides isabella eva* Fabricius.
Described from Chiriqui, Honduras.

aerotome Felder & Felder, 1862*a* : 79 (as sp. of *Heliconius*). 1 ♂ syntype. Rio Negro. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 17, fig. 172.]
Currently placed as a subspecies of *Heliconius ethilla* Godart.

aglaope Felder & Felder, 1862*a* : 79 (as sp. of *Heliconius*). 2 ♂ syntypes. Rio Negro. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 20, fig. 206.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).

aglaopeia Staudinger, 1896 : 305 (as var. of *Heliconius thelxiope*). 1 ♂ syntype. Cayenne. / Origin. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 23, fig. 232.]
Currently placed as a form of *Heliconius melpomene thelxiope* (Hübner).

agnata Stichel, 1906*a* : 46 (as form of *Heliconius erato estrella*). Holotype ♀. Ucayali. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 29, fig. 300.]
Currently placed as a transitional form between *Heliconius erato microclea* Kaye and *Heliconius erato emma* Riffarth.

aida Neustetter, 1926*a* : 37 (as form of *Heliconius penelope*). 1 ♂, 1 ♀ syntypes. Bolivia. 1925. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 24, fig. 246.]
Currently placed as a transitional form between *Heliconius melpomene penelope* Staudinger and *Heliconius melpomene amandus* Grose-Smith & Kirby.

alba Riffarth, 1900 : 208 (as ab. of *Heliconius antiochus*). 1 ♂, 3 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, 1 ♀, Amazonas Sup. 1 ♀, Manicore. 1 ♀, Surinam. Coll. Fruhst. [Pl. 37, fig. 381.]

Currently placed as a subspecies of *Heliconius antiochus* (L.).

Described from Sarayacu, Amazon sup. Surinam.

albidior Neustetter, 1928*d* : 259 (as form of *Heliconius cydno cydnides*). Holotype ♂. Rio Putamayo, Montegoa? / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 27, fig. 272.]

Currently placed as a transitional form between *Heliconius cydno cydnides* Staudinger and *Heliconius cydno zelinde* Butler.

albinea Riffarth, 1899 : 408 (as ab. of *Heliconius rhea*). Holotype ♀. Surinam (Stichel). / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 37, fig. 379.]

Currently placed as a form of *Heliconius sara thamar* (Hübner).

Described from a single male specimen only; however, this female is apparently the type.

albipunctata Riffarth, 1900 : 199 (as ab. of *Heliconius zuleika*). 3 ♂, 1 ♀ syntypes. Chiriqui. coll. Staud. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 14, fig. 142.]

Currently placed as a form of *Heliconius hecale zuleika* Hewitson.

albucilla Bates, 1866 : 88 (as sp. of *Heliconius*). 2 ♂ syntypes. Lion Hill, Panama. McLeannan. / Godman-Salvin Coll. 1913–2. [Pl. 14, fig. 148.]

Currently placed as a transitional form between *Heliconius hecale melicerta* Bates and *Heliconius hecale zuleika* Hewitson.

alexander Neustetter, 1928*a* : 443 (as form of *Heliconius humboldti*). 1 ♀ syntype. Rio Itaya by Iquitos. / Type. O. Bang-Haas. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 15, fig. 157.]

Currently placed as a form of *Heliconius hecale humboldti* Neustetter.

alithea Hewitson, 1869*b* : 10 (as sp. of *Heliconia*). 3 ♂, 1 ♀ syntypes. Ecuador. Hewitson Coll. 79. 69. [Pl. 28, fig. 282.]

Currently placed as a subspecies of *Heliconius cydno* Doubleday.

amalfreda Riffarth, 1900 : 212 (as ab. of *Heliconius phyllis*). 2 ♂ syntypes. Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Man. H. / Original. 1 ♂, Berg en Daal, Sur., Juli. Michaelis. [Pl. 32, fig. 322.]

Currently placed as a subspecies of *Heliconius erato* (L.).

amandoides Neustetter, 1926*a* : 39 (as form of *Heliconius penelope*). 1 ♂ syntype. Bolivia. 1925. W. Niepelt, Zirlau. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 25, fig. 255.]

Currently placed as a form of *Heliconius melpomene amandus* Grose-Smith & Kirby.

amandus Grose-Smith & Kirby, 1892 : pl. 1, fig. 3 (as sp. of *Heliconius*). 1 ♂ syntype. Boliv. / Ex. Grose Smith. 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 25, fig. 252.]

Currently placed as a subspecies of *Heliconius melpomene* (L.).

amaryllis Felder & Felder, 1862*a* : 80 (as sp. of *Heliconius*). 1 ♂ syntype. Rio Negro. / Rothschild Bequest. B. M. 1939–1. [Pl. 19, fig. 191.]

Currently placed as a subspecies of *Heliconius melpomene* (L.).

amathusia Cramer, [1777] : 124, pl. 177, fig. F (as sp. of *Papilio*). 1 ♂ syntype. No. 6. Amathusia. Cr., II, 177, F. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 39, fig. 396.]

Currently placed as a form of *Heliconius doris doris* (L.).

amneris Neustetter, 1926*a* : 37 (as form of *Heliconius penelope*). 2 ♂ syntypes. Bolivia. 1925. W. Niepelt, Zirlau. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 25, fig. 250.]

Currently placed as a transitional form between *Heliconius melpomene penelope* Staudinger and *Heliconius melpomene amandus* Grose-Smith & Kirby.

amoena Stichel, 1903 : 13 (as ab. of *Eueides lampeto*). 1 ♂, 1 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Santa Jnéz (Ecuad.), R. Haensch S. 1 ♀, Bolivien. [Pl. 4, fig. 35.]
Currently placed as a form of *Eueides lampeto acacetes* Hewitson.

amphitrite Riffarth, 1901 : 157 (as subsp. of *Heliconius phyllis*). 4 ♂ syntypes. Hillapani, Peru. Garlepp. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 33, fig. 337.]
Currently placed as a subspecies of *Heliconius erato* (L.).

anacreon Grose-Smith & Kirby, 1892 : pl. 1, fig. 5 (as sp. of *Heliconius*). 1 ♂, syntype. Boliv. / Ex. Grose Smith, 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 34, fig. 347.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato phyllis* (Fabricius).

anacreonides Neustetter, 1925 : 60 (as form of *Heliconius phyllis kruegeri*). Holotype ♂. Rio Grande, Bolivia. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 34, fig. 346.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato phyllis* (Fabricius).

anactorie Doubleday, 1847 : 103, pl. 15, fig. 4 (as sp. of *Heliconia*). 1 ♂ syntype. Bolivia. Bridges. 46–76. [Pl. 33, fig. 341.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato phyllis* (Fabricius).

anaitis Riffarth, 1907*b* : 513 (as form of *Heliconius erato anacreon*). Holotype ♀. Prov. Sara, Dep. St. Cruz, Süd Bolivia. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 34, fig. 351.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato phyllis* (Fabricius).

anderida Hewitson, [1853] : pl. 1, fig. 2 (as sp. of *Heliconia*). 1 ♂ syntype. Caracas. Hewitson Coll. 79. 69. [Pl. 15, fig. 151.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).
Described from Honduras.

andicola Bates, 1864*b* : 187 (as sp. of *Agraulis*). 2 ♂ syntypes. Godman-Salvin Coll. 1915–3. 1 ♂, Tacunga, Ecuador. Bates Coll. 1 ♂, Canelos, Ecuador, Bates Coll. [Pl. 1, fig. 7.]
Currently placed as a subspecies of *Dione juno* (Cramer).

andremona Cramer, [1780] : 16, pl. 297, fig. A (as sp. of *Papilio*). 1 ♂ syntype. Surinam. Coll. Klukenberg. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 39, fig. 393.]
Currently placed as a transitional form between *Heliconius erato erato* (L.) and *Heliconius erato hydara* (Hewitson).

androdaixa Seitz, 1913 : 393 (as ab. of *Heliconius phyllis andremona*). Holotype ♂. Bragance, (Para). M. de Mathan. / Levick Bequest. 1941–83. [Pl. 33, fig. 335.]
Currently placed as a transitional form between *Heliconius erato amazona* Staudinger and *Heliconius erato hydara* Hewitson.

antigona Riffarth, 1900 : 210 (as var. of *Heliconius hydara*). Holotype ♂. Columbien. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 29, Fig. 293.]
Currently placed as a form of *Heliconius erato demophoon* Ménétriés.
Described from Medellin, Rio Dagua.

aquilionaris Brown, 1975 : 222 (as subsp. of *Heliconius congener*). Holotype ♂, 5 ♂, 5 ♀ paratypes. ♂ holotype, 1 ♂, 3 ♀ paratypes, Medina, Ost. Colombia, 1500 m. Coll. Fassl. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, 1 ♀ paratypes, Medina, Ost. Colombia, 1500 m. Coll. Fassl. / Rothschild Bequest. B. M. 1939–1. 1 ♂ paratype, Colombie, Env. Bogota. / Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, 1 ♀ paratypes, Colombie, Env. Bogota. Frère Apollinaire-Marie. 1918. / Levick Bequest. 1941–83. [Pl. 37, fig. 384.]

araguaia Brown, 1975 : 216 (as subsp. of *Heliconius wallacei*). Holotype ♂, 7 ♂ paratypes. ♂ holotype, 3 ♂ paratypes, R. Araguaya, Prov. Goyaz. June, 1906. (G. A. Baer.) / Rothschild Bequest. B. M. 1939–1. 2 ♂ paratypes, Tocantins. / Ex. Grose Smith. 1910 / Joicey Bequest. Brit. Mus. 1934–120. 2 ♂ paratypes, Araguaya R. E. Reynolds. 90–58. [Pl. 8, fig. 86.]

arcuella Druce, 1874 : 156 (as sp. of *Heliconia*). 1 ♂ syntype. Nauta, Ecuador. E. Bartlett. / Godman-Salvin Coll. 1913–2. [Pl. 10, fig. 110.]

Currently placed as a subspecies of *Heliconius numata* (Cramer).

aristiona Hewitson, [1853] : pl. 1, fig. 4 (as sp. of *Heliconia*). 1 ♂ syntype. Colombia, Hewitson Coll. 79. 69. [Pl. 10, fig. 106.]

Currently placed as a subspecies of *Heliconius numata* (Cramer).

aristomache Riffarth, 1901 : 131 (as subsp. of *Heliconius erato*). 3 ♂, 1 ♀ syntypes. Original./ Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 3 ♂ syntypes, Balzapamba, (Ecuad.) R. Haensch. S. 1 ♀ syntype, Palmar, (Ecuad.) R. Haensch. S. [Pl. 9, fig. 96.]

Currently placed as a form of *Heliconius doris eratonius* Staudinger.

arquata Stichel, 1903 : 9, pl. 1, fig. 9 (as subsp. of *Eueides isabella*). 1 ♂ syntype. S. America, Caucathal. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 5, fig. 50.]

Currently placed as a form of *Eueides isabella huebneri* Ménétriés.

artemis Riffarth, 1907*b* : 502, pl. 5, fig. 4 (as subsp. of *Heliconius novatus*). Holotype ♂. Ostabh. d. Cordillere a. Titicaca S. Bolivia. / Original' / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 11, fig. 118.]

Currently placed as a form of *Heliconius numata leopardus* Weymer.

artifex Stichel, 1899*a* : 29 (as ab. of *Heliconius erato*). 2 ♂ syntypes. 1 ♂ syntype, Brazilia, Espirito Santo, e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M. 1939–1. 1 ♂ syntype, Paraguay, H. Stichel. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 35, fig. 353.]

Currently placed as a form of *Heliconius erato phyllis* (Fabricius).

athalia Neustetter, 1927*b* : 228 (as form of *Heliconius melpomene*). Holotype ♂. St Laurent, Guyana. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 23, fig. 236.]

Currently placed as a form of *Heliconius melpomene thelxiope* (Hübner).

The original description is clearly based on one specimen only and the above specimen appears to be the true holotype. Holzinger & Holzinger (1974) also doubtfully include a specimen in the NM, Vienna as the 'Holotype' of *athalia*.

atrosecta Riffarth, 1900 : 202 (as ab. of *Heliconius melpomene*). 2 ♂, 1 ♀ syntypes. Obidos (Michaelis). 1894 / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig 219.]

Currently placed as a form of *Heliconius melpomene melpomene* (L.).

Described from three males only; however, these specimens apparently constitute the syntypic series.

atthis Doubleday, 1847 : 102, pl. 14, fig. 3 (as sp. of *Heliconia*). 1 ♂ syntype. Guayaquil. Dr J. Hooker. 45–142. [Pl. 17, fig. 174.]

Currently placed as a species of *Heliconius* Kluk.

augusta Riffarth, 1900 : 204 (as var. of *Heliconius melpomene*). 1 ♂ paratype. Cayenne. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 23, fig. 237.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene thelxiope* (Hübner).

aurelia Neustetter, 1926*b* : 289 (as form of *Heliconius melpomene*). 1 ♂ syntype. Guyane franc., Maroni. Le Moult. 1899–1901. / Levick Bequest 1941–83. [Pl. 22, fig. 224.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

aurofasciata Neustetter, 1928*b* : 76 (as form of *Heliconius melpomene aglaope*). Holotype ♂. S. Columbien, Mocoa. November 1927. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 21, fig. 209.]
Currently placed as a transitional form between *Heliconius melpomene aglaope* Felder & Felder and *Heliconius melpomene bellula* Stichel.

aurora Bates, 1862 : 555 (as sp. of *Heliconius*). 1 ♀ syntype. S. Paulo, Amazons, Bates. / Godman-Salvin Coll. 1913–2. [Pl. 10, fig. 111.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).

australis Brown, 1975 : 218 (as subsp. of *Heliconius hecale*). 1 ♂ paratype. Quevedo, W. Ecuador. (V. Buchwald). / Rothschild Bequest. B. M. 1939–1. [P. 15, fig. 150.]

automatia Oberthür, 1925 : 81, fig. 5 (as sp. of *Heliconia*). Holotype ♂. Guyane Francaise, St Laurent du Maroni. Ex. Antonin Garre. 1923. [Pl. 36, fig. 368.]
Currently placed as a synonym of *Heliconius demeter bouqueti* Nöldner.

aventina Oberthür, 1925 : 81, fig. 6 (as sp. of *Heliconia*). Holotype ♀. Nouve Grenade. / Levick Bequest B. M. 1941–83. [Pl. 26, fig. 267.]
Currently placed as a hybrid between *Heliconius cydno hermogenes* Hewitson and *Heliconius melpomene melpomene* (L.).

azteka Neustetter, 1928*d* : 259 (as form of *Heliconius cydno cydnides*). Holotype ♂. Solano, W. Col. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 26, fig. 265.]
Currently placed as a transitional form between *Heliconius cydno cydnides* Staudinger and *Heliconius cydno zelinde* Butler.

barcanti Brown, 1975 : 219 (as subsp. of *Heliconius hecale*). Holotype ♂, 2 ♂ paratypes. Carupano, Dec. 1891. C. W. Ellacombe. / Rothschild Bequest. B. M. 1939–1. [Pl. 16, fig. 160.]

bari Oberthür, 1902 : 23, pl. 21, figs 129, 130 (as sp. of *Heliconia*). 1 ♂, 1 ♀ syntypes. Levick Bequest. 1941–83. 1 ♂ syntype, Guyane Francaise. Coll. C. Bar. 1 ♀ syntype, Cayenne. [Pl. 17, fig. 176.]
Currently placed as a subspecies of *Heliconius elevatus* Nöldner.

bartletti Druce, 1876 : 219, pl. 18, fig. 2 (as sp. of *Heliconius*). 1 ♂, 1 ♀ syntypes. Godman-Salvin Coll. 1913–2. 1 ♂, Santa Cruz, Peru. E. Bartlett. 1 ♀, Cosnipata Vall., E. Peru. H. Whitely. [Pl. 6, fig. 67.]
Currently placed as a subspecies of *Heliconius aoede* (Hübner).

batesi Riffarth, 1900 : 207 (as sp. of *Heliconius*). 6 ♂ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, Chanchamayo, Süd. Peru. 1 ♂, Peru? 3 ♂, Ecuador. [Pl. 18, fig. 186.]
Currently placed as a synonym of *Heliconius melpomene xenoclea* Hewitson.

beata Riffarth, 1907*b* : 512, pl. 5, fig. 14 (as form of *Heliconius erato estrella*). Holotype ♀. Ob. Pastaza, Ecuad., *c*. 1000 m. Cll. Niepelt. / Original. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 30, fig. 304.]

Currently placed as a transitional form between *Heliconius erato notabilis* Salvin & Godman and *Heliconius erato lativitta* Butler.

beebei Turner, 1966*b* : 128 (as subsp. of *Heliconius demeter*). Holotype ♂, 2 ♀ paratypes. 1 ♂, 1 ♀, British Guiana, Essiquibo R., 1 st. Falls. 14.x.1929. Oxf. Univ. Expedn. B. M. 1929–485. 1 ♀, Puruni River, B. Guiana. C. Buckle. / Ex. coll. C. J. Grist. 1925. [Pl. 36, fig. 371.]

bella Riffarth, 1907*b* : 511 (as form of *Heliconius cyrbia cyrbia*). 1 ♂, 1 ♀ syntypes. Slanos, Ecuador. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 29, fig. 298.]
Currently placed as a form of *Heliconius erato cyrbia* Godart.

bicoloratus Butler, 1873*a* : 167 (as sp. of *Heliconius*). 2 ♂ syntypes. Nauta, Amazons Degand. 58–77. [Pl. 10, fig. 108.]
Currently placed as a form of *Heliconius numata aristiona* Hewitson.

biedermanni Niepelt, 1926*b* : 337 (as form of *Heliconius penelope*). 3 ♂, 1 ♀ syntypes. Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, 1 ♀, Bolivia. 1925. W. Niepelt, Zirlau. 1 ♂, O. Bolivia. [Pl. 25, fig. 254.]
Currently placed as a transitional form between *Heliconius melpomene amandus* Grose-Smith & Kirby and *Heliconius melpomene penelope* Staudinger.

broncus Stichel, 1906*a* : 21, pl. 2, fig. 6a (as subsp. of *Heliconius cydno*). 1 ♀ syntype. Peru? / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 28, fig. 280.]
Currently placed as a transitional form between *Heliconius cydno alithea* Hewitson and *Heliconius cydno zelinde* Butler.

brunnea Stichel, 1903 : 6, pl. 1, fig. 5 (as ab. of *Eueides isabella hippolina*). 1 ♀ syntype. Tarapota, Peru. / Original. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 5, fig. 55.]
Currently placed as a subspecies of *Eueides isabella* (Cramer).

burchelli Poulton, 1910 : 331 (as subsp. of *Heliconius nanna*). 1 ♂ syntype, Chapada, Matto Grosso. H. H. Smith. / Godman-Salvin Coll. 1913–2. [Pl. 25, fig. 256.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).

butleri Brown, 1975 : 217 (as subsp. of *Heliconius paradalinus*). Holotype ♂, 4 ♂, 3 ♀ paratypes. ♂ holotype, 1 ♂ paratype, Amazones, Pérou, Cavallo-Cocho, Mai-Juillet 1884. M. de Mathan. / Levick Bequest. 1941–83. 1 ♂, 1 ♀ paratype, Pebas, Amazones, M. de Mathan. fin Xbre & 1er. Tr. 1880. / Levick Bequest. 1941–83. 1 ♂ paratype, Chambireyacù près Yurimaguas, (Huallaga-Pérou) M. de Mathan. Juin-Août 1885. / Levick Bequest. 1941–83. 1 ♂ paratype, Iquitos, Peru, August 1931. (G. Klug). / Rothschild Bequest. B. M. 1939–1. 1 ♀ paratype, Upper Amazons, Iquitos, August 1932 (G. Klug). / Rothschild Bequest. B. M. 1939–1. 1 ♀ paratype, Rio Pacaya, Lower Ucayali Peru. Aug.–Sept. 1912. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 13, fig. 136.]

butleri Stichel, 1907 : 19 (as subsp. of *Dione moneta*). 3 ♂ syntypes. Typus. 2 ♂, Colombia, R. Magdalena. e. c. H. Stichel. 1 ♂, Ecuador, Balzapamba. e. c. H. Stichel. [Pl. 1, fig. 9.]
Currently placed as a subspecies of *Dione moneta* Hübner.

caeruleatus Stichel, 1906*a* : 35 (as subsp. of *Heliconius doris*). 2 ♂ syntypes. Süd-Peru Pozuzo. e. c. H. Stichel. / Typus. 1 ♂ syntype, Rothschild Bequest. B. M. 1939–1. [Pl. 9, fig. 98.]
Currently placed as a synonym of *Heliconius doris doris* (L.).

calathus Stichel, 1909 : 178, fig. 2 (as subsp. of *Eueides tales*). 1 ♂ syntype. Ob. Pastaza Ecuad. *c.* 1000 m. Cll. Niepelt. Okt-Dec. 1906. / Cotype. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 6, fig. 62.]
Currently placed as a subspecies of *Eueides tales* (Cramer).

callista Riffarth, 1900 : 188, 212 (as ab. of *Heliconius phyllis*). 1 ♀ syntype. Amazon super. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 31, fig. 320.]
Currently placed as a synonym of *Heliconius erato hydara* form *callycopis* (Cramer).

callycopis Cramer, [1777] : 143, pl. 190, figs E, F (as sp. of *Papilio*). 1 ♂ syntype. No. 20. Callicopis. Cr., II, 190, E. F. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 39, fig. 394.]
Currently placed as a transitional form between *Heliconius erato hydara* Hewitson and *Heliconius erato amalfreda* Riffarth.

candidus Brown, 1975 : 223 (as subsp. of *Heliconius sapho*). Holotype ♂, 5 ♂, 4 ♀ paratypes. ♂ holotype, Ecuador. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂ paratype, Ecuador, Fruhstorfer./ Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, 1 ♀ paratype, Ecuador. Hewitson Coll. 79.69. 1 ♀ paratype, Ecuador. / Ex. Grose Smith 1910 / Joicey. Bequest Brit. Mus. 1934–120. 1 ♀ paratype, Angamarca, Ecuador. Crowley Bequest. 1901–78. 1 ♂ paratype, S. Domingo de los Colorados. W. Ecuad., October 1893 (W. Goodfellow). / Rothschild Bequest. B. M. 1939–1. 1 ♂, 1 ♀ paratypes, Cachabé. low *c.* I. 97. (Rosenberg). Rothschild Bequest. B. M. 1939–1. [Pl. 37, fig. 383.]

carbo Stichel, 1903 : 13, pl. 1, fig. 11 (as form of *Eueides lampeto acacetes*). 1 ♂, 1 ♀ syntypes. Santa Jnez (Ecuad.). R. Haensch S. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [P. 4, fig. 36.]
Currently placed as a subspecies of *Eueides lampeto* Bates.

carnea Neustetter, 1926*a* : 38 (as form of *Heliconius penelope*). Holotype ♂. Bolivia. 1925. W. Niepelt, Zirlau. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 24, fig. 248.]
Currently placed as a transitional form between *Heliconius melpomene penelope* Staudinger and *Heliconius melpomene amandus* Grose-Smith & Kirby.

carteri Riley, 1926 : 240, pl. 2, fig. 1 (as subsp. of *Colaenis julia*). 9 ♂, 5 ♀ syntypes. 7 ♂, Nassau, Bahamas. F. E. Taylor. / Godman-Salvin Coll. 1915–3. 1 ♂, 1 ♀, Nassau, Bahamas. 98–226. 16.10.98. 1 ♂, 1 ♀, Bahamas. 1903–286. Sir G. Carter. 1 ♀, N. Providence, Bahama Is. F. E. Taylor. / Godman-Salvin Coll. 1915–3. 1 ♀, Bahamas, Nassau I. 7.x.98. J. L. Bonhote. / Brit. Mus. 1924–188. 1 ♀, Bahamas. Sir G. Carter. 1904–200. [Pl. 2, fig. 21.]
Currently placed as a subspecies of *Dryas iulia* (Fabricius).

cassandra Felder & Felder, 1862*b* : 419 (as sp. of *Heliconius*). 1 ♂ syntype. Bogota. Lindig. Type. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 7, fig. 74.]
Currently placed as a subspecies of *Heliconius hecuba* Hewitson.

caternaulti Oberthür, 1902 : 24, pl. 11, fig. 131 (as sp. of *Heliconia*). 3 ♂, 1 ♀ syntypes. Levick Bequest. 1941–83. 2 ♂, Guyane Francaise. Collection C. Bar. 1 ♂, Cayenne. 1 ♀, Bragance, (Para). M. de Mathan. [Pl. 7, fig. 80.]
Currently placed as a synonym of *Heliconius xanthocles vala* Staudinger.

catella Stichel, 1907 : 18, pl. 2, fig. 3 (as subsp. of *Dione vanillae*). Holotype ♂. Süd-Peru, Pozuzo. e. c. H. Stichel. / Rothschild Bequest. B. M. 1939–1. [Pl. 2, fig. 13.]
Currently placed as a transitional form between *Agraulis vanillae lucina* Felder & Felder and *Agraulis vanillae maculosa* (Stichel).

caucana Riley, 1926 : 242 (as subsp. of *Colaenis euchroia*). Lectotype ♂, 4 ♂ paralectotypes. Godman-Salvin Coll. 1915–3. ♂ lectotype, 3 ♂ paralectotypes, Frontino, Antioquia. T. K. Salmon. 1 ♂ paralectotype, Interior of Colombia, Wheeler. [Pl. 2, fig. 15.]

Currently placed as a subspecies of *Podotricha euchroia* (Doubleday).
Lectotype designated by Vane-Wright, Ackery & Smiles, 1975 : 615.

cephallenia Felder & Felder, 1865 : 373 (as sp. of *Heliconius*). 1 ♂ syntype. Surinam, Guiana. Beske. / Druce Coll. Ex. Kaden Coll. / Godman-Salvin Coll. 1913–2. [Pl. 17, fig. 170.]
Currently placed as a subspecies of *Heliconius ethilla* Godart.

ceres Oberthür, 1920 : 30, pl. 519, fig. 4324 (as sp. of *Heliconia*). 2 ♂ syntypes. Nouvelle Granade, Cauca, Juntas. M. de Mathan. fin 1897, 1–1898. / Levick Bequest. 1941–83. [Pl. 38, fig. 388.]
Currently placed as a transitional form between *Heliconius eleuchia eleuchia* Hewitson and *Heliconius eleuchia eleusinus* Staudinger.

chapadensis Brown, 1973 : 6 (as subsp. of *Heliconius ethilla*). 3 ♂, 2 ♀ paratypes. 1 ♂ paratype, Matto Grosso, Brazil. / Brit. Mus. 1933–161. 1 ♂ paratype, Amazons. H. H. Smith. / Godman-Salvin Coll. 1913–2. 1 ♂, 1 ♀ paratypes, Burity, 30 miles N. E. [48 km] of Cuyabá 2250 ft [686 m] 17–30.vi.27. Matto Grosso. C. L. Collenette / Joicey Bequest. Brit. Mus. 1934–120. 1 ♀ paratype, Burity, 30 miles N. E. [48 km] of Cuyabá 2250 ft [686 km] 1–14.vii.27. Matto Grosso. C. L. Collenette / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 17, fig. 171.]

chestertonii Hewitson, 1872*b* : fig. 22 (as sp. of *Heliconia*). 1 ♂, 2 ♀ syntypes. N. Granada. Hewitson Coll. 79. 69. [Pl. 29, fig. 294.]
Currently placed as a subspecies of *Heliconius erato* (L.).

chioneus Bates, 1864*a* : 58 (as sp. of *Heliconius*). Holotype ♂. Lion Hill, Panama, McLeannan. / Godman-Salvin Coll. 1913–2. [Pl. 26, fig. 263.]
Currently placed as a subspecies of *Heliconius cydno* Doubleday.

choarina Hewitson, 1872*a* : 83 (as sp. of *Heliconia*). 1 ♀ syntype. Ecuador, Hewitson Coll. 79.69. [Pl. 7, fig. 77.]
Currently placed as a subspecies of *Heliconius hecuba* Hewitson.

chrysantis Godman & Salvin, 1881 : 146 (as sp. of *Heliconius*). Holotype ♂. Nicaragua, T. Bridges. / Godman-Salvin Coll. 1913–2. [Pl. 14, fig. 141.]
Currently placed as a transitional form between *Heliconius hecale zuleika* Hewitson and *Heliconius hecale fornarina* Hewitson.

clarescens Butler, 1875 : 223 (as sp. of *Heliconius*). Holotype ♀. Bugaba, Panama. Arce. / Godman-Salvin Coll. 1913–2. [Pl. 12, fig. 131.]
Currently placed as a subspecies of *Heliconius ismenius* Latreille.

claudia Godman & Salvin, 1881 : 145 (as sp. of *Heliconius*). 2 ♂ syntypes. Calobre, Panama, Arcé. / Godman-Salvin Coll. 1913–2. [Pl. 16, fig. 168.]
Currently placed as a subspecies of *Heliconius ethilla* Godart.

clearei Hall, 1930 : 278 (as subsp. of *Heliconius hecale*). 10 ♂, 4 ♀ syntypes. Mabaruma, British Guiana, Dec. 1929–Jan. 1930. A. Hall. 4 ♂, 2 ♀, Joicey Bequest. Brit. Mus. 1934–120. 5 ♂, 2 ♀, Brit. Mus. 1930–567. [Pl. 16, fig. 161.]

clearista Oberthür, 1923 : 304, pl. 565, fig. 4863 (as ab. of *Heliconius egeria*). 1 ♂ syntype. Guyane francaise. / Levick Bequest. B. M. 1941–83. [Pl. 8, fig. 91.]
Currently placed as an aberration of *Heliconius egeria egeria* (Cramer).

clelia Neustetter, 1927*a* : 86 (as form of *Heliconius phyllis anacreon*). Holotype ♂. Bolivia. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 34, fig. 345.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato phyllis* (Fabricius).

clytie Neustetter, 1927*b* : 229 (as form of *Heliconius xenoclea plesseni*). Holotype ♂. Guayes, Ecuador. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 20, fig. 199.]
Currently placed as a transitional form between *Heliconius melpomene plesseni* Riffarth and *Heliconius melpomene aglaope* Felder & Felder.

cognata Riffarth, 1907*b* : 506 (as form of *Heliconius melpomene aglaope*). 4 ♂ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Pozuzo, Peru. 800 m. Hoffman. 1 ♂, Peru. H. Fruhstorfer. 2 ♂, Peru, Pozuzo. H. Fruhstorfer. [Pl. 20, fig. 204.]
Currently placed as a form of *Heliconius melpomene aglaope* Felder & Felder.

collis Joicey & Kaye, 1917*a* : 413, pl. 57, fig. 3 (as ab. of *Heliconius melpomene melpomene*). Holotype ♂. Guyane Francse., Nouveau Chantier. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 21, fig. 215.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

compacta Joicey & Kaye, 1919 : 349 (as ab. of *Heliconius melpomene melpomene*). Holotype ♂. Guyane Francse., St. Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 21, fig. 216.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

completa Oberthür, 1920 : 37, pl. 522, fig. 4334 (as form of *Heliconia cethosia*). 2 ♂ syntypes. 1 ♂, Nouvelle-Grenade, Région de Bogota. Recu en decembre 1917 du frère Apollinaire-Marie. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Nouvelle-Grenade, Env. de Bogota. Frère Apollinaire-Marie. recu 2 avril 1917. / Levick Bequest. 1941–83. [Pl. 8, fig. 82.]
Probably best regarded as a synonym of *Heliconius xanthocles flavosia* Kaye.

concinna Stichel, 1906*a* : 28 (as form of *Heliconius vulcanus*). Holotype ♂. Balzapamba (Ecuad.). R. Haensch S. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 18, fig. 184.]
Currently placed as a form of *Heliconius melpomene cythera* Hewitson.

confluens Lathy, 1906 : 453, pl. 34, fig. 3 (as var. of *Heliconius xenoclea*). 1 ♂, 1 ♀ syntypes. Adams Bequest B. M. 1912–399. 1 ♂, Pichis Road, Peru. 3000 ft [914 m] 04. Watkins and Tomlinson. 1 ♀, Rio Colorado, Peru, 2500 ft [762 m] 04. Watkins and Tomlinson. [Pl. 18, fig. 185.]
Currently placed as a transitional form between *Heliconius melpomene xenoclea* Hewitson and *Heliconius melpomene euryades* Riffarth.

confluens Neustetter, 1928*d* : 259 (as form of *Heliconius cydno cydnides*). 1 ♂ syntype. Solano, Yapura. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 26, fig. 266.]
Currently placed as a transitional form between *Heliconius cydno zelinde* Butler and *Heliconius cydno cydnides* Staudinger.

constricta Joicey & Kaye, 1917*a* : 427 (as ab. of *Heliconius erato*). Holotype ♂. Guyane Francse., St. Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 32, fig. 329.]
Currently placed as a transitional form between *Heliconius erato erato* (L.) and *Heliconius erato hydara* Hewitson.

copiosus Stichel, 1906*a* : 57 (as subsp. of *Eueides lampeto*). 2 ♀ syntypes. Potaro Road, Potaro Essequibo, Brit. Guiana. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 3, fig. 31.]

coralii Butler, 1877 : 151 (as sp. of *Heliconius*). 2 ♂, 2 ♀ syntypes. Amazons Trail. 77–64. 1 ♂, Serpa Bush 25.4.74. 1 ♂, 1 ♀, Serpa Bush, 21.4.74. 1 ♀, Serpa, 13.75. [Pl. 32, fig. 324.]

Currently placed as a transitional form between *Heliconius erato amalfreda* Riffarth and *Heliconius erato hydara* Hewitson.

corona Niepelt, 1907*a* : 213 (as form of *Heliconius batesi plesseni*). 1 ♂ syntype. Original. / Adams Bequest. B. M. 1912–399. [Pl. 19, fig. 195.]
Currently placed as a form of *Heliconius melpomene plesseni* Riffarth.

crespinus Krüger, E. G., 1925 : 151 (as var. of *Heliconius crispus*). 1 ♀ syntype. 24.6.16. 2200. Cauca V. / Cotype. / Collection Niepelt. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 7, fig. 76.]
Currently placed as a form of *Heliconius hecuba crispus* Staudinger.

crystalina Hall, 1921 : 279 (as sp. of *Eueides*). 7 ♂, 2 ♀ syntypes. Crystalina, W. Colombia. 1100 ft, [330 m] June–July 1920. A. Hall. 3 ♂, Brit. Mus. 1929–292. 4 ♂, 2 ♀, Joicey Bequest. Brit. Mus. 1934–120. [Pl. 6, fig. 61.]
Currently placed as a synonym of *Eueides tales xenophanes* Felder.

cupidineus Stichel, 1906*a* : 31 (as subsp. of *Heliconius aeode*). 1 ♂, 1 ♀ syntypes. Original / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Tarapoto, Peru. 1 ♀, Juanjuy, Peru. [Pl. 6, fig. 68.]

curvifascia Talbot, 1928 : 220 (as form of *Heliconius melpomene burchelli*). Holotype ♂. Melguira, 10 miles S. [16 km] of Diamantino, 2000 ft [608 m] 23.v.–3.vi.27. Matto Grosso. C. L. Collenette. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 25, fig. 257.]
Currently placed as a transitional form between *Heliconius melpomene penelope* Staudinger and *Heliconius melpomene burchelli* Poulton.

cybeleia Joicey & Kaye, 1919 : 349 (as ab. of *Heliconius melpomene cybele*). Holotype ♂. Guyane Francse., St-Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig. 221.]
Probably best regarded as a synonym of *Heliconius melpomene meriana* form *obscurata* Riffarth.

cybelellus Joicey & Kaye, 1917*b* : 92, pl. 6, fig. 4 (as ab. of *Heliconius erato erato*). 1 ♂ syntype. Serpa, Lower Amazon, Jan–March, 1914. A. Hall. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 32, fig. 325.]
Currently placed as a transitional form between *Heliconius erato amalfreda* Riffarth and *Heliconius erato hydara* Hewitson.

cydno Doubleday, 1847 : 103, pl. 15, fig. 3 (as sp. of *Heliconia*). 1 ♀ syntype. Bogota, Miers. 46–55. [Pl. 26, fig. 264.]
Currently placed as a species of *Heliconius* Kluk.

cythera Hewitson, 1869*b* : 9 (as sp. of *Heliconia*). 2 ♂ syntypes. Ecuador. Hewitson Coll. 79.69. [Pl. 18, fig. 183.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).

deflava Joicey & Kaye, 1917*b* : 93, pl. 6, fig. 6 (as ab. of *Heliconius sapho primularis*). 2 ♂, 1 ♀ syntypes. Paramba, Ecuador. Rosenburg. / Ex Grose Smith, 1910. / Joicey Bequest. Brit. Mus. 1934–120. (Pl. 38, fig. 386.]
Currently placed as a transitional form between *Heliconius eleuchia primularis* Butler and *Heliconius eleuchia eleusinus* Staudinger.

deleta Stichel, 1907 : 13 (as form of *Colaenis phaetusa*). Holotype ♂. Paraguay, Nuev. Germania, e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M 1939–1. [Pl. 1, fig. 4.]
Currently placed as a form of *Dryadula phaetusa* (L.).

diana Riffarth, 1900 : 204 (as ab. of *Heliconius melpomene*). Holotype ♂. Cayenne? / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 23, fig. 229.]

Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

dianides Joicey & Kaye, 1917*a* : 417 (as ab. of *Heliconius melpomene cybele*). Holotype ♂. Guyane Francse, St Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig. 225.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

diaphana Niepelt, 1915 : 58 (as var. of *Colaenis tithraustes*). Holotype ♂. S. O. Peru. 1903. / Collection Niepelt. / Presented by J. J. Joicey Esq. Brit. Mus. 1931–291. [Pl. 2, fig. 20.]
Currently placed as a synonym of *Podotricha telesiphe telesiphe* (Hewitson).

diatonica Fruhstorfer, 1912 : 14 (as subsp. of *Metamandana dido*). Holotype ♂. Honduras, San Pedro Sula. ex. coll. Fruhstorfer. / Fruhstorfer Coll. B. M. 1937–285. [Pl. 1, fig. 2.]
Currently placed as a synonym of *Philaethria dido* (L.), but may eventually be recognized as a good species.

diffluens Riffarth, 1907*b* : 513 (as form of *Heliconius erato phyllis*). 3 ♂, 4 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, 2 ♀, Prov. Sara, Dep. St Cruz, Süd Bolivia. 1 ♂, 1 ♀, Peru. 1 ♀, Süd Brazilien. [Pl. 34, fig. 348.]

diffusus Butler, 1873*a* : 168 (as sp. of *Heliconius*). 1 ♂ syntype. Para, Bates 50–4. [Pl. 12, fig. 128.]
Currently placed as a form of *Heliconius numata silvana* (Cramer).

diformata Riffarth, 1900 : 209 (as ab. of *Heliconius cyrbia*). 1 ♂ syntype. Ecuador, Quito. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 29, fig. 297.]
Currently placed as a transitional form between *Heliconius erato cyrbia* Godart and *Heliconius erato venus* Staudinger.

diotrephes Hewitson, 1869*a* : 33 (as sp. of *Heliconia*). 2 ♂, 2 ♀ syntypes. Nicaragua. Hewitson Coll. 79.69. [Pl. 26, fig. 261.]
Probably best regarded as a synonym of *Heliconius cydno galanthus* Bates.

dissoluta Stichel : 1903 : 6, pl. 1, fig. 7 (as subsp. of *Eueides isabella*). 1 ♂, 1 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Tarapota, Peru. 1 ♀, Bolivien. [Pl. 5, fig. 56.]
Currently placed as a subspecies of *Eueides isabella* (Cramer).

diva Stichel, 1906*a* : 47 (as subsp. of *Heliconius erato*). Holotype ♂. Bolivia. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 33, fig. 340.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato lativitta* Butler.

dryope Riffarth, 1900 : 212 (as ab. of *Heliconius phyllis*). 1 ♂ syntype. Surinam, H. Stichel. / Original. / Ex. Coll. Riffarth. / Joicey Bequest./Brit. Mus. 1934–120. [Pl. 32, fig. 323.]
Currently placed as a transitional form between *Heliconius erato amalfreda* Riffarth and *Heliconius erato hydara* Hewitson.

dynastes Felder & Felder, 1861 : 102 (as sp. of *Eueides*). 1 ♂, 1 ♀ syntypes. Felder Colln. / Rothschild Bequest. B. M. 1939–1. 1 ♂, Bogota. Lindig. Type. 1 ♀, Venezuela. Moritz. Type. [Pl. 5, fig. 57.]
Currently placed as a form of *Eueides isabella huebneri* Ménétriés.

eanes Hewitson, 1861 : 155, pl. 10, fig. 1 (as sp. of *Eueides*). 1 ♂ syntype. Amazons, Hewitson Coll. 79–69. [Pl. 4, fig. 45.]

eanides Stichel, 1903 : 30, pl. 1, fig. 24 (as ab. of *Eueides eanes*). 1 ♂ syntype. Bolivien. / Original. / Ex. Coll. Riffarth. [Pl. 5, fig. 47.]
Currently placed as a synonym of *Eueides eanes heliconioides* Felder & Felder.

edias Hewitson, 1861 : 155, pl. 10, fig. 2 (as sp. of *Eueides*). 4 ♂, 1 ♀ syntypes. New Grenada. Hewitson Coll. 79. 69. [Pl. 3, fig. 26.]
Currently placed as a subspecies of *Eueides procula* Doubleday.

egeriformis Joicey & Kaye, 1917*a* : 430, pl. 107, fig. 8 (as sp. of *Eueides*). 5 ♂ syntypes. Joicey Bequest. Brit. Mus. 1934–120. 4 ♂, Guyane Francse, St Jean du Maroni. Collection Le Moult. 1 ♂, Guyane Francse. Nouveau Chantier. Collection Le Moult. [Pl. 36, fig. 369.]
Currently placed as a synonym of *Heliconius demeter bouqueti* Nöldner.

egregia Riffarth, 1907*b* : 505 (as form of *Heliconius cydno alithea*). 2 ♂ syntypes. Balzapamba (Ecuad.). R. Haensch S. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 28, fig. 284.]

elegantula Joicey & Kaye, 1917*a* : 417 (as ab. of *Heliconius melpomene cybele*). Holotype ♂. Guayane Fr., St. Jean. vii–ix.15. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig. 227.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

eleuchia Hewitson, [1853] : pl. 3, fig. 8 (as sp. of *Heliconia*). 1 ♂, 1 ♀ syntypes. N. Granada. Hewitson Coll. 79.69. [Pl. 37, fig. 385.]
Currently placed as a species of *Heliconius* Kluk.

elsa Riffarth, 1899 : 407 (as var. of *Heliconius clytia*). 1 ♂ syntype. Surinam, ex. coll. Fruhstorfer. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 8, fig. 85.]
Currently placed as a form of *Heliconius wallacei wallacei* Reakirt.

eltringhami Joicey & Kaye, 1917*a* : 418, pl. 107, fig. 6 (as subsp. of *Heliconius melpomene*). Holotype ♂. St. Laurent, Maroni River, French Guiana. July–Sept. 1915. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 21, fig. 211.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

emilius Weymer, 1912 : 73 (as sp. of *Heliconius*). Holotype ♂. Muzo, Colombia 400 b. 800 m. Coll. Fassl. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 27, fig. 278.]
Currently placed as a hybrid between *Heliconius melpomene melpomene* (L.) and *Heliconius cydno cydno* Doubleday.

emma Riffarth, 1901 : 164 (as subsp. of *Heliconius phyllis*). 1 ♂, 3 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Amazon super. 2 ♀, Yurim, Peru. Mich. 1 ♀, Archidona (Ecuad.). R. Haensch S. [Pl. 30, fig. 309.]
Currently placed as a subspecies of *Heliconius erato* (L.).

emmelina Oberthür, 1902 : 24, pl. 11, fig. 132 (as sp. of *Heliconia*). Holotype ♂. Guyane anglaise. / Levick Bequest. B. M. 1941–83. [Pl. 6, fig. 66.]
Currently placed as a synonym of *Heliconius aoede astydamia* Erichson.

emsleyi Brown, 1975 : 211 (as sp. of *Eueides*). Holotype ♂, 1 ♀ paratype. 1 ♂, Valdevia Colombia. Pratt, 97. / Ex. Grose Smith, 1910. 1 ♀, Equateur, La Chima. M. de Mathan 1 Semestre 1893. / Ex. Oberthür Coll. Brit. Mus. 1927–3. [Pl. 4, fig. 38.]

eratophylla Joicey & Kaye, 1917*b* : 91, pl. 6, fig. 2 (as subsp. of *Heliconius erato*). Holotype ♀. Tarapo, Peru, S. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 29, fig. 299.]
Currently placed as a transitional form between *Heliconius erato favorinus* Hopffer and *Heliconius erato lativitta* Butler.

eratosignis Joicey & Talbot, 1925 : 649 (as sp. of *Eueides*). 1 ♂, 1 ♀ syntypes. Joicey Bequest. Brit. Mus. 1934–120. 1 ♀, River System Cuyaba-Corumba, Matto Grosso, Brazil. [Pl. 36, fig. 372.]
Currently placed as a subspecies of *Heliconius demeter* Staudinger.

erythrea Cramer, [1777] : 140, pl. 189, fig. A (as sp. of *Papilio*). 1 ♂ syntype. No. 14. Erythrea. Cr., II, 189, A. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 39, fig. 395.]
Currently placed as a transitional form between *Heliconius erato erato* (L.) and *Heliconius erato hydara* Hewitson.

estrella Bates, 1862 : 560 (as sp. of *Heliconius*). 1 ♂, 1 ♀ syntypes. Godman-Salvin Coll. 1913–2. 1 ♂, Marajo I., Amazons. H. W. Bates. 1 ♀, Para, L. Amazons. H. W. Bates [Pl. 33, fig. 334.]
Currently placed as a subspecies of *Heliconius erato* (L.).

etylus Salvin, 1871 : 414 (as sp. of *Heliconius*). 1 ♂ syntype. Gualaquiza, Ecuador. Pearce. / Godman-Salvin Coll. 1913–2. [Pl. 30, fig. 308.]
Currently placed as a transitional form between *Heliconius erato lativitta* Butler and *Heliconius erato notabilis* Salvin & Godman.

eucherius Weymer, 1906 : 68 (as sp. of *Heliconius*). Holotype ♂. Bogota, Columbien. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 14, fig. 149.]
Currently placed as a form of *Heliconius hecale holcophorus* Staudinger.

euchroia Doubleday, 1847 : pl. 20, fig. 3 (as sp. of *Colaenis*). Lectotype ♂. Columbia. Bought from Jurgenson. 43–64. [Pl. 2, fig. 14.]
Currently placed as a species of *Podotricha* Michener.
Described from Venezuela, New Granada.
Lectotype designated by Vane-Wright, Ackery & Smiles, 1975 : 613.

eueidina Oberthür, 1916 : 37, pl. 406, fig. 3487 (as sp. of *Heliconia*). 2 ♂ syntypes. Levick Bequest. 1941–83. 1 ♂, Guyane Francaise. Collection C. Bar. 1 ♂, Ex. Musaeo Boisduval. / Cayenne. [Pl. 36, fig. 370.]
Currently placed as a synonym of *Heliconius demeter bouqueti* Nöldner.

euphone Felder & Felder, 1862*b* : 418 (as sp. of *Heliconius*). 2 ♂ paralectotypes. Bogota. Lindig. / Felder Colln. / Rothschild Bequest. 1939–1. [Pl. 10, fig. 102.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).
Lectotype designated by Holzinger & Holzinger, 1974 : 264.

euryades Riffarth, 1900 : 205 (as var. of *Heliconius amaryllis*). 1 ♂ syntype. Vilcanota, 3000 ft [914 m] Peru. Garlepp. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 24, fig. 245.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).

eurycleia Brown, 1973 : 4 (as subsp. of *Heliconius aoede*). 1 ♂, 1 ♀ paratypes. Areia Branca, MT. Km. 575, Cuiabá-Pôrto Velho. 23.vi.1971. / Brit. Mus. 1974–63. [Pl. 6, fig. 69.]

eurysaces Hewitson, 1864 : 248, pl. 16, fig. 3 (as sp. of *Eueides*). 1 ♀ syntype. Quito. Hewitson Coll. 79.69. [Pl. 3, fig. 29.]
Currently placed as a subspecies of *Eueides procula* Doubleday.

excellens Neustetter, 1926*a* : 37 (as form of *Heliconius penelope*). Holotype ♂. Bolivia. 1925. W. Niepelt. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 24, fig. 247.]
Currently placed as a transitional form between *Heliconius melpomene penelope* Staudinger and *Heliconius melpomene amandus* Grose-Smith & Kirby.

exornata Riffarth, 1907*b* : 505 (as form of *Heliconius cydno galanthus*). 4 ♂ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, Limon, Costa Rica. Sept.–Oct. 1904. A. Hall. 1 ♂, Carillo, Costa Rica. 1 ♂, San Carlos, Costa Rica. [Pl. 26, fig. 262.]

Currently placed as a transitional form between *Heliconius cydno galanthus* Bates and *Heliconius cydno chioneus* Bates.

faivrei Joicey & Kaye, 1919 : 349 (as ab. of *Heliconius melpomene melpomene*). Holotype ♀. Guyane Francse., St.-Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 21, fig. 218.]

Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

fasciatus Godman & Salvin, 1877 : 62 (as sp. of *Heliconius*). 3 ♂ syntypes. Lion Hill, Panama. McLeannan. / Godman-Salvin Coll. 1913–2. [Pl. 13, fig. 135.]

Currently placed as a form of *Heliconius ismenius ismenius* Latreille.

faustalia Joicey & Kaye, 1917*a* : 417 (as ab. of *Heliconius melpomene cybele*). Holotype ♀. Guyane Francse., St-Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig. 223.]

Currently placed as a transitional form of *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

fischeri Fassl, 1912 : 55 (as subsp. of *Heliconius clysonimus*). Holotype ♀. Rio Aguacatal, Columb., W. Codr. 2000 m. Coll. Fassl. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 36, fig. 364.]

Currently placed as a transitional form between *Heliconius clysonymus clysonymus* Latreille and *Heliconius clysonymus hygiana* Hewitson.

flagrans Stichel, 1919 : 120 (as subsp. of *Heliconius amaryllis*). 2 ♂ syntypes. Trinidad, Port of Spain. / Typus. / e. c. H. Stichel. / Rothschild Bequest. B. M. 1939–1. [Pl. 21, fig. 210.]

Currently placed as a form of *Heliconius melpomene melpomene* (L.).

flammea Niepelt, 1925 : 252 (as form of *Heliconius phyllis*). Holotype ♂. Bolivia. 1925. W. Niepelt, Zirlau. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 25, fig. 253.]

Currently placed as a transitional form between *Heliconius melpomene amandus* Grose-Smith and *Heliconius melpomene penelope* Staudinger.

flava Neustetter, 1928*c* : 247 (as form of *Heliconius hecuba choarinus*). Holotype ♀. Baiza (Ecuad.). R. Haensch. 1500 m. 16.i.00. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 7, fig. 78.]

Currently placed as a form of *Heliconius hecuba choarina* Hewitson.

Described from Ecuador, Macas.

flaveola Joicey & Kaye, 1917*b* : 93, pl. 6, fig. 3 (as subsp. of *Heliconius cydno*). 1 ♂ syntype. Mocotone, Venezuela. / Ex. Coll. Herbert Druce, 1913 / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 38, fig. 389.]

Currently placed as a transitional form between *Heliconius cydno perijaensis* Masters and *Heliconius cydno barinasensis* Masters.

flavidior Neustetter, 1928*d* : 258 (as form of *Heliconius cydno cydnides*). Holotype ♂. Solano, Yapura. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 27, fig. 271.]

Probably best regarded as a synonym of *Heliconius cydno zelinde* Butler.

flavopunctatus Fassl, 1912 : 55 (as subsp. of *Heliconius clysonimus*). 1 ♂, 1 ♀ syntypes. Rio Aguacatal, Columb., W. Codr., 2000 m. Coll. Fassl. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 35, fig. 362.]

Currently placed as a transitional form between *Heliconius clysonymus clysonymus* Latreille and *Heliconius clysonymus hygiana* Hewitson.

flavorubra Neustetter, 1926*b* : 279 (as form of *Heliconius melpomene*) 1 ♂ syntype. St. Laurent, Guyana. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 21, fig. 213.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

formosus Bates, 1866 : 87 (as sp. of *Heliconius*). 1 ♂ syntype. Lion Hill, Panama. McLeannan. / Godman-Salvin Coll. 1913–2. [Pl. 35, fig. 355.]
Currently placed as a subspecies of *Heliconius hecalesia* Hewitson.

fornarina Hewitson, [1853] : pl. 3, fig. 9 (as sp. of *Heliconia*). 1 ♂ syntype. S. America. Capt. Belcher. 44–6. [Pl. 13, fig. 139.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

framptoni Riley, 1926 : 241, pl. 2, fig. 5 (as subsp. of *Colaenis julia*). 3 ♂, 2 ♀ syntypes. 2 ♂, West Indies, St. Vincent. April, 1925. R. E. E. Frampton. / Brit. Mus. 1925–529. 1 ♂, 1 ♀, Windward side, St. Vincent, W. I., H. H. Smith. / Godman-Salvin Coll. 1915–3. 1 ♀, St. Vincent, W. I., H. H. Smith. / Godman-Salvin Coll. 1915–3. [Pl. 3, fig. 23.]
Currently placed as a subspecies of *Dryas iulia* (Fabricius).

fraterna Niepelt, 1914 : 40 (as form of *Heliconius melpomene aglaope*). 1 ♂ syntype. Ecuador, Canelos. 800 m. / Original. / Adams Bequest. B. M. 1912–399. [Pl. 19, fig. 198.]
Currently placed as a form of *Heliconius melpomene plesseni* Riffarth.

fruhstorferi Riffarth, 1899 : 406 (as sp. of *Heliconius*). Holotype ♀. Espirito-Santo, Brasil. ex. coll. Fruhstorfer. / Original. / Ex. Coll. Riffarth. [Pl. 9, fig. 100.]
Currently placed as a synonym of *Heliconius nattereri* Felder & Felder.

fulgidus Stichel, 1906*a* : 41 (as subsp. of *Heliconius sara*). 5 ♂, 1 ♀ syntypes. 1 ♂, 1 ♀, Costa-Rica (Fr. Schneider). e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M. 1939–1. 1 ♂, Costa-Rica, Carillo. e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M. 1939–1. 1 ♂, Carillo, Costa Rica. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Costa Rica. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Piedras Negras. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 37, fig. 375.]
Probably best regarded as a synonym of *Heliconius sara sara* (Fabricius).

fuliginosa Riffarth, 1907*b* : 511 (as form of *Heliconius erato erato*). 2 ♂, 4 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Surinam? 1 ♂, 2 ♀, Berg en Daal, Sur., Juli. Michaelis. 2 ♀, Cayenne. [Pl. 32, fig. 328.]

fuliginosa Stichel, 1903 : 12, pl. 1, fig. 10 (as ab. of *Eueides lampeto*). 2 ♂, 1 ♀ syntypes. Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Santa Jnéz (Ecuad.). R. Haensch S. / Original. 1 ♂, Santa Jnéz (Ecuad.). R. Haensch S.. 1 ♀, Baños (Ecuad.). R. Haensch S. [Pl. 3, fig. 33.]
Currently placed as a form of *Eueides lampeto acacetes* Hewitson.

fulvescens Lathy, 1906 : 452, pl. 34, fig. 1 (as var. of *Heliconius pasithoe*). Holotype ♀. Demerara, Castell. / Adams Bequest. B. M. 1912–399. [Pl. 16, fig. 159.]
Currently placed as a form of *Heliconius hecale hecale* (Fabricius).

galanthus Bates, 1864*a* : 58 (as sp. of *Heliconius*). 3 ♂, 2 ♀ syntypes. Godman-Salvin Coll. 1913–2. 1 ♂, Montagua Valley. F. D. G. & O. S. 1 ♂, 1 ♀, Forests of N. Vera Paz. F. D. G. & O. S. 1 ♂, 1 ♀, Choctum, Guatemala. F. D. G. & O. S. [Pl. 26, fig. 260.]
Currently placed as a subspecies of *Heliconius cydno* Doubleday.

gibbsi Kaye, 1919 : 217 (as ab. of *Heliconius doris doris*). Holotype ♂. Friendship, B. Guiana. / Ex. Coll. Schmassmann, 1927. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 9, fig. 97.]
Currently placed as a form of *Heliconius doris doris* (L.).
Described from a single female specimen only; however, this male is apparently the type.

glaucina Neustetter, 1928*b* : 80 (as form of *Heliconius estrella*). Holotype ♀. S. Columbien, Mocoa. November 1927. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 31, fig. 312.]
Currently placed as a transitional form between *Heliconius erato dignus* Stichel and *Heliconius erato lativitta* Butler.

gnophota Stichel, 1907 : 20, pl. 2, fig. 4 (as subsp. of *Dione glycera*). 1 ♂, 1 ♀ syntypes. Colombia, Cordill. p. Bogota. e. c. H. Stichel. / Rothschild Bequest. B. M. 1939–1. [Pl. 1, fig. 8.]
Currently placed as a synonym of *Dione glycera* (Felder & Felder).

gracilis Riffarth, 1907*b* : 504, pl. 5, fig. 3 (as form of *Heliconius aristiona lepidus*). 1 ♂, 1 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, La Merced, Peru. 2500 ft [762 m] '04. 1 ♀, Tarapoto, Peru. [Pl. 10, fig. 104.]
Currently placed as a form of *Heliconius numata euphone* Felder & Felder.

gracilis Stichel, 1903 : 23 (as subsp. of *Eueides aliphera*). 2 ♂ syntypes. Typus. / Rothschild Bequest. B. M. 1939–1. 1 ♂, Honduras, San Pedro Sula e. c. H. Stichel. 1 ♂, Costa-Rica San Carlos e. c. H. Stichel. [Pl. 6, fig. 63.]

guiensis Riffarth, 1900 : 198 (as ab. or var. of *Heliconius numata*). Holotype ♀. British Guayana. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 11, fig. 122.]
Currently placed as a form of *Heliconius numata numata* (Cramer).

gustavi Staudinger, 1896 : 287 (as ab. of *Heliconius weymeri*). 1 ♂ syntype. Rio Dagua, Columb. / Ex. Grose Smith. 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 27, fig. 276.]
Currently placed as a form of *Heliconius cydno weymeri* Staudinger.

gynaesia Hewitson, 1875 : 182 (as sp. of *Heliconia*). Holotype ♂. Hewitson Coll. 79.69. [Pl. 35, fig. 356.]
Currently placed as a subspecies of *Heliconius hecalesia* Hewitson.

haenschi Riffarth, 1900 : 200 (as ab. of *Heliconius cydno*). 1 ♂, 1 ♀ syntypes. Balzapamba (Ecuad). R. Haensch S. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 28, fig. 281.]
Currently placed as a form of *Heliconius cydno alithea* Hewitson.

halli Kaye, 1919 : 217 (as ab. of *Heliconius wallacei brevimaculata*). Holotype ♀. Serpa, Lower Amazon. March 1914. A. Hall. / Ex. Coll. Schmassmann, 1927. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 8, fig. 88.]
Currently placed as a form of *Heliconius wallacei wallacei* Reakirt.

hecuba Hewitson, 1858 : pl. 4, fig. (as sp. of *Heliconia*). 4 ♂ syntypes. N. Granada, Hewitson Coll. 79.69. [Pl. 7, fig. 72.]
Currently placed as a species of *Heliconius* Kluk.

helena Riffarth, 1907*b* : 511 (as form of *Heliconius erato cybelinus*). 2 ♂ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Obidos, Amazonen strom. viii.xi.99. ex. coll. Fruhstorfer. 1 ♂, Berg en Dal, Sur., Juli. Michaelis. [Pl. 32, fig. 321.]
Currently placed as a transitional form between *Heliconius erato amalfreda* Riffarth and *Heliconius erato hydara* Hewitson.

heliconioides Felder & Felder, 1865 : 378, pl. 46, fig. 16 (as sp. of *Eueides*). 1 ♂ syntype. Ecuador, type. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 6, fig. 65.]
Currently placed as a subspecies of *Eueides eanes* Hewitson.

hemicycla Joicey & Kaye, 1917*a* : 427 (as ab. of *Heliconius erato*). 6 ♀ syntypes. Guyane Francse., St. Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 32, fig. 327.]
Currently placed as a form of *Heliconius erato erato* (L.).

henrici Krüger, R., 1929 : 376 (as form of *Heliconius phyllis anactorie*). Holotype ♂. Carmen, Rio Madre de Dios, Nord Bolivia. / Levick Bequest. B. M. 1941–83. [Pl. 34, fig. 342.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato phyllis* (Fabricius).

heraldicus Stichel, 1903 : 27, pl. 1, fig. 19 (as subsp. of *Eueides thales*). 1 ♀ syntype. Para. 10.92. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 6, fig. 60.]
Currently placed as a synonym of *Eueides tales pythagoras* Kirby.

hermanni Riffarth, 1899 : 407 (as var. oder ab? of *Heliconius ismenius*). Holotype ♀. Columb. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 13, fig. 134.]
Currently placed as a form of *Heliconius ismenius ismenius* Latreille.

hermathena Hewitson, [1853] : pl. 2, fig. 5 (as sp. of *Heliconia*). 1 ♀ syntype. Amazons. Hewitson Coll. 79.69. [Pl. 29, fig. 290.]
Currently placed as a species of *Heliconius* Kluk.

hermogenes Hewitson, 1858 : pl. 4, fig. 12 (as sp. of *Heliconia*). 1 ♂ syntype. Ex. Musaeo Boisduval. / Levick Bequest. 1941–83. [Pl. 27, fig. 269.]
Currently placed as a subspecies of *Heliconius cydno* Doubleday.

hierax Hewitson, 1869*b* : 11 (as sp. of *Heliconia*). 3 ♂, 1 ♀ syntypes. Ecuador. Hewitson Coll. 79.69. [Pl. 7, fig. 71.]
Currently placed as a species of *Heliconius* Kluk.

himera Hewitson, 1867*a* : pl. 5, fig. 16 (as sp. of *Heliconia*). 3 ♂ syntypes. Ecuador. Hewitson Coll. 79.69. [Pl. 29, fig. 291.]
Currently placed as a species of *Heliconius* Kluk.

hippola Hewitson, 1867*a* : pl. 5, fig. 13 (as sp. of *Heliconia*). 1 ♂ syntype. Hewitson Coll. 79.69. [Pl. 17, fig. 173.]
Currently placed as a hybrid between *Heliconius melpomene melpomene* (L.) and *Heliconius ethilla metalilis* Butler.

hippolinus Butler, 1873*a* : 169 (as sp. of *Eueides*). 1 ♀ syntype. E. Peru, Whitely, 69–61. [Pl. 5, fig. 54.]
Currently placed as a subspecies of *Eueides isabella* (Cramer).

hippolyte Bates, 1862 : 559 (as sp. of *Heliconius*). 1 ♂, 1 ♀ syntypes. Godman-Salvin Coll. 1913–2. 1 ♂, Tapajos, Amazons. Bates. 1 ♀, Serpa, Amazons. Bates. [Pl. 24, fig. 241.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene madeira* Riley.

humboldti Neustetter, 1928*a* : 442 (as sp. of *Heliconius*). 1 ♂, 1 ♀ syntypes. Rio Itaya by Iquitos. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 15, fig. 156.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

hydara Hewitson, 1867*a* : pl. 5, fig. 14 (as sp. of *Heliconia*). 1 ♂ syntype. N. Granada, Hewitson Coll. 79.69. [Pl. 31, fig. 316.]
Currently placed as a subspecies of *Heliconius erato* (L.).

hydarina Stichel, 1912 : 1 (as form of *Heliconius hermathena*). Holotype ♀. Faro. v. 1911 Ducke. / N. Brazilien, Faro, e. c. H. Stichel. / Rothschild Bequest. B. M. 1939–1. [Pl. 29, fig. 289.]

Currently placed as a synonym of *Heliconius hermathena vereatta* Stichel.

hygiana Hewitson, 1867*a* : pl. 5, fig. 15 (as sp. of *Heliconia*). 1 ♀ syntype. Quito, Hewitson Coll. 79.69. [Pl. 36, fig. 365.]

Currently placed as a subspecies of *Heliconius clysonymus* Latreille.

ignotus Joicey & Kaye, 1917*b* : 89 (as sp. of *Heliconius*). 1 ♂ syntype. Charape, N. Peru. A. & E. Pratt. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 11, fig. 114.]

Currently placed as a form of *Heliconius numata talboti* Joicey & Kaye.

ilia Niepelt, 1908 : 506 (as form of *Heliconius erato estrella*). Holotype ♂. Ob. Pastaza, Ecuad., *c.* 1000 m. Cll. Niepelt. / Adams Bequest. B. M. 1912–399. [Pl. 30, fig. 307.]

Currently placed as a transitional form between *Heliconius erato notabilis* Salvin & Godman and *Heliconius erato lativitta* Butler.

immoderata Stichel, 1906*a* : 9 (as form of *Heliconius ismenius ismenius*). 1 ♂, 1 ♀ syntypes. Columb., Muzo. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 13, fig. 133.]

incarnata Riley, 1926 : 243 (as subsp. of *Dione vanillae*). Lectotype ♂, 25 ♂, 13 ♀ paralectotypes. Lectotype ♂, 1 ♂, 1 ♀ paralectotypes, Near Durango city, Mexico. Becker. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, Florida. W. Schaus. 1905–244. 2 ♂, 2 ♀ paralectotypes, Florida, Morrison. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, Florida, H. K. Morrison. / Godman-Salvin Coll. 1915–3. 1 ♂, 1 ♀ paralectotypes, S. California: Pasadena. ix. 1920. G. B. Pearson. 1 ♂ paralectotype, San Diego. August. Cockerell. 1904–165. 1 ♂ paralectotype, Texas Hg. 71. / Zell. Coll. 1884. 1 ♂ paralectotype, Texas U.S.A. Belfrage. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, U.S. America: Havana Ill. A. W. J. Pomeroy. 1919–269. / Pres. by Imp. Bur. Ent. 1 ♂ paralectotype, Mazatlan, Mexico. Forrer. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, Atoyac, Vera Cruz. May H. H. S. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, Cordova, Vera Cruz. Rumeli. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, Cordova, Mexico. Hoege. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, Oaxaca, S. Mexico. Fenochio. / Godman-Salvin Coll. 1915–3. 2 ♂, 1 ♀ paralectotypes, Teapa, Tabasco. March. H. H. S. / Godman-Salvin Coll. 1915–3. 1 ♂, 1 ♀ paralectotype, Polochic Valley. F. D. G. & O. S. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, Nicaragua. Sr. M. D. Chaves. 1900–65. (9). 2 ♂ paralectotypes, Matagalpa, Nicaragua. Richardson. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, Chontales, Nicaragua. Janson. / Godman-Salvin Coll. 1915–3. 2 ♂ paralectotypes, Costa Rica. Van Patten. Druce Coll. / Godman-Salvin Coll. 1915–3. 1 ♂ paralectotype, S. Fran'sco, 4500 ft [1370 m] H. Rogers. / Godman-Salvin Coll. 1915–3. 1 ♀ paralectotype, Key West Fla. 30.1.'69. E. B. Zell. Coll. 1884. 1 ♀ paralectotype, Texas Hg. 71. / Dallas Tex. Boll. / Zell. Coll. 1884. 1 ♀ paralectotype, Ent. Club. 44–12. 1 ♀ paralectotype, Alamos, Mexico. Buchan-Hepburn. / Godman-Salvin Coll. 1915–3. 1 ♀ paralectotype, Pinos Altos, Chihuahua, Mexico. Buchan-Hepburn. / Godman-Salvin Coll. 1915–3. 1 ♀ paralectotype, S. Geronimo. Guatemala. Champion. / Godman-Salvin Coll. 1915–3. 1 ♀ paralectotype, Honduras: Tegucigalpa 1.xii.1920. B. M. 1921–503. [Pl. 1, fig. 10.]

Currently placed as a subspecies of *Agraulis vanillae* (L.).

Lectotype designated by Michener (1942 : 7).

indecisa Joicey & Kaye, 1917*b* : 91 (as subsp. of *Heliconius aristiona*). 1 ♂ syntype. Up. Orinoco. / Ex. Grose Smith. 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 15, fig. 153.]

Currently placed as a form of *Heliconius hecale ithaca* Felder & Felder.

insolita Riffarth, 1907*b* : 508 (as form of *Heliconius melpomene timareta*). 1 ♂, 1 ♀ syntypes.

Santa Jnéz (Ecuad.). R. Haensch S. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 28, fig. 285.]
Currently placed as a form of *Heliconius timareta* Hewitson.

insularis Stichel, 1909 : 179 (as subsp. of *Eueides vicini*). Holotype ♂. Trinidad, Belmont. e. c. H. Stichel. / Rothschild Bequest. B. M. 1939–1. [Pl. 36, fig. 367.]
Currently placed as a synonym of *Heliconius vicini* (L.).

intermedius Riffarth, 1907*b* : 509, pl. 5, fig. 11 (as subsp. of *Heliconius hecuba*). Holotype ♂. Columbien. ex. coll. Fruhstorfer. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 7, fig. 75.]
Currently placed as a transitional form between *Heliconius hecuba hecuba* Hewitson and *Heliconius hecuba cassandra* Felder & Felder.

iris Riffarth, 1907*b* : 506 (as form of *Heliconius melpomene aglaope*). Holotype ♂. Ob. Pastaza, Ecuad., *c.* 1000 m. Cll. Niepelt. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 20, fig. 202.]
Currently placed as a transitional form between *Heliconius melpomene aglaope* Felder & Felder and *Heliconius melpomene plesseni* Riffarth.

isolda Niepelt, 1908 : 505 (as form of *Heliconius melpomene aglaope*). 1 ♂ syntype. Jibaria. / Original. / Rothschild Bequest. B. M. 1939–1. [Pl. 20, fig. 203.]
Currently placed as a transitional form between *Heliconius melpomene aglaope* Felder & Felder and *Heliconius melpomene plesseni* Riffarth.

isabellinus Bates, 1862 : 554 (as var. of *Heliconius numata*). 1 ♂, 1 ♀ syntypes. Godman-Salvin Coll. 1913–2. 1 ♂, S. Paulo, U. Amazons. H. W. Bates. 1 ♀, Tunantins, Amazons. H. W. Bates. [Pl. 11, fig. 113.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).

ithaca Felder & Felder, 1862*b* : 418 (as sp. of *Heliconius*). 2 ♂, 1 ♀ syntypes. Bogota, Lindig. / Felder Colln. / Rothschild Bequest. 1939–1. [Pl. 15, fig. 152.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

jucundus Bates, 1864*a* : 56 (as sp. of *Heliconius*). 10 ♂, 3 ♀ syntypes. Lion Hill, Panama, McLeannan. / Godman-Salvin Coll. 1913–2. [Pl. 14, fig. 146.]
Currently placed as a transitional form between *Heliconius hecale melicerta* Bates and *Heliconius hecale zuleika* Hewitson.

juno Riffarth, 1900 : 209 (as var. of *Heliconius cyrbia*). Holotype ♂. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 31, fig. 317.]
Probably best regarded as a synonym of *Heliconius erato hydara* form *guarica* Reakirt.

kruegeri Neustetter, 1925 : 60 (as subsp. of *Heliconius phyllis*). Holotype ♂. Rio Grande, Bolivia. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 34, fig. 344.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato phyllis* (Fabricius).

lampeto Bates, 1862 : 562 (as sp. of *Eueides*). Holotype ♀. S. Paulo, U. Amazons. H. W. Bates. / Godman-Salvin Coll. 1913–2. [Pl. 3, fig. 32.]

lativitta Butler, 1877 : 150 (as sp. of *Heliconius*). 2 ♂, 1 ♀ syntypes. 1 ♂, Guayaquil, Stephens. 55–48. 1 ♂, Boa vista, R. Madeira 1.6.74. / Amazons Trail. 77–64. / 77.65. Trail. 1 ♀, Ega, Amazons, Bates. 56–69. [Pl. 31, fig. 311.]
Currently placed as a subspecies of *Heliconius erato* (L.).

latus Riffarth, 1900 : 197 (as var. of *Heliconius paraensis*). 3 ♂, 3 ♀ syntypes. Original. / Ex.

Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, 2 ♀, Itaituba, Stgr. 1 ♂, Itait. 1 ♀, Amaz. Sup. [Pl. 16, fig. 166.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

laurentina Neustetter, 1927*b* : 229 (as form of *Heliconius melpomene*). Holotype ♂. St. Laurent, Guyana. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 23, fig. 235.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene thelxiope* (Hübner).

lavinia Neustetter, 1926*b* : 290 (as form of *Heliconius melpomene*). 1 ♂, 1 ♀ syntypes. St. Laurent. Guyana. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig. 226.]
Currently placed as a transitional form between *Heliconius melpomene meriana* Turner and *Heliconius melpomene melpomene* (L.).

leonora Krüger, R., 1927 : 86 (as form of *Heliconius phyllis*). Holotype ♂. Rio Grande, Bolivia. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 34, fig. 343.]
Currently placed as a transitional form between *Heliconius erato venustus* Salvin and *Heliconius erato phyllis* (Fabricius).

lepidus Riffarth, 1907*b* : 503, pl. 5, fig. 2 (as subsp. of *Heliconius aristiona*). 2 ♂, 3 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, 2 ♀, Coca, (Ecuad.), R. Haensch. S. 1 ♀, Sara-yacu (Ecuad.), R. Haensch. [Pl. 10, fig. 103.]
Currently placed as a form of *Heliconius numata euphone* Felder & Felder.

leucadia Bates, 1862 : 556 (as sp. of *Heliconius*). Holotype ♂. S. Paulo, U. Amazons. H. W. Bates. / Godman-Salvin Coll. 1913–2. [Pl. 37, fig. 380.]

leucomma Bates, 1866 : 88 (as sp. of *Eueides*). 3 ♂, 1 ♀ syntypes. Lion Hill, Panama. McLeannan. / Godman-Salvin Coll. 1913–2. [Pl. 6, fig. 64.]
Currently placed as a synonym of *Eueides lybia olympia* (Fabricius).

lindigii Felder & Felder, 1865 : 377, pl. 47, figs 1, 2 (as sp. of *Heliconius*). 1 ♂ syntype. Bogota. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 8, fig. 89.]
Currently placed as a subspecies of *Heliconius burneyi* (Hübner).

lineata Salvin & Godman, 1868 : 145 (as sp. of *Eueides*). 2 ♂, 1 ♀ syntypes. Polochic Valley. F. D. G. & O. S. / Godman-Salvin Coll. 1913–2. [Pl. 4, fig. 44.]

longarena Hewitson, 1875 : 182 (as sp. of *Heliconia*). 1 ♂ syntype. N. Granada. Hewitson Coll. 79.69. [Pl. 35, fig. 357.]
Currently placed as a subspecies of *Heliconius hecalesia* Hewitson.

lucia Riley, 1926 : 241 (as subsp. of *Colaenis julia*). 3 ♂, 1 ♀ syntypes. 2 ♂, 1 ♀, Santa Lucia. 91–57. 1 ♂, Sta. Lucia. W. Indies Comm. 1901–102. [Pl. 2, fig. 22.]
Currently placed as a subspecies of *Dryas iulia* (Fabricius).

lucina Felder & Felder, 1862*a* : 110 (as sp. of *Agraulis*). 2 ♂ syntypes. Rio Negro. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 2, fig. 12.]
Currently placed as a subspecies of *Agraulis vanillae* (L.).

lucindella Joicey & Kaye, 1917*a* : 423 (as ab. of *Heliconius melpomene thelxiope*). Holotype ♂. Guyane Francse., St.-Jean du Maroni. Collection Le Moult./Joicey Bequest. Brit. Mus. 1934–120. [Pl. 24, fig. 239.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene thelxiope* (Hübner).

luminosus Riffarth, 1901 : 132 (as subsp. of *Heliconius erato*). 1 ♂, 1 ♀ syntypes. Columb. Stgr. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 9, fig. 93.]
Currently placed as a form of *Heliconius doris eratonius* Staudinger.
Described from Chiriqui.

luteipicta Neustetter, 1926*b* : 281 (as form of *Heliconius melpomene*). 1 ♂, 1 ♀ syntypes. St. Laurent, Guyana. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Co-Type. 1 ♀, Type. [Pl. 21, fig. 212.]

Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

lutulenta Stichel, 1907 : 13 (as female form of *Colaenis phaetusa*). Holotype ♀. Paraguay, Nuev. Germania, e. c. H. Stichel. / Typus / Rothschild Bequest. B. M. 1939–1. [Pl. 1, fig. 5.]

Currently placed as a form of *Dryadula phaetusa* (L.).

maculosa Stichel, 1907 : 18 (as subsp. of *Dione vanillae*). 2 ♂, 2 ♀ syntypes. Typus. 1 ♂, 1 ♀, Brazilia, Espirito Santo. e. c. H. Stichel. / Rothschild Bequest. B. M. 1939–1. 1 ♀, Süd-Brazilien, Theresopolis. e. c. H. Stichel. / Rothschild Bequest. B. M. 1939–1. 1 ♂, Paraguay, Nuev. Germania. e. c. H. Stichel. [Pl. 2, fig. 11.]

Currently placed as a subspecies of *Agraulis vanillae* (L.).

madeira Riley, 1919 : 185 (as subsp. of *Heliconius melpomene*). 1 ♂ syntype. Lower Madeira, 13. July 1913. / E. H. W. Wickham 1913–446. [Pl. 24, fig. 244.]

magdalena Bates, 1864*a* : 57 (as sp. of *Heliconius*). 1 ♂ syntype. Bogota, Colombia. Bates Coll. / Godman-Salvin Coll. 1913–2. [Pl. 37, fig. 377.]

Currently placed as a synonym of *Heliconius sara sara* (Fabricius).

majestica Joicey & Kaye, 1917*a* : 423 (as ab. of *Heliconius melpomene thelxiope*). Holotype ♂. Guyane Francse., Nouveau Chantier. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 23, fig. 238.]

Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene thelxiope* (Hübner).

margarita Riffarth, 1900 : 205 (as ab. of *Heliconius melpomene*). 1 ♂ syntype. Bolivia. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 25, fig. 251.]

Currently placed as a transitional form between *Heliconius melpomene penelope* Staudinger and *Heliconius melpomene amandus* Grose-Smith & Kirby.

maris Joicey & Kaye, 1917*a* : 418 (as ab. of *Heliconius melpomene cybele*). Holotype ♀, 2 ♂, 1 ♀ paratypes. Guyane Francse., St. Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig. 228.]

Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

melanopors Joicey & Kaye, 1917*a* : 425 (as form of *Heliconius numata*). 2 ♀ syntypes. Joicey Bequest. Brit. Mus. 1934–120. 1 ♀, Guyane Francse., Nouveau Chantier. Collection Le Moult. 1 ♀, Guyane Francse., St. Jean du Maroni. Collection Le Moult. [Pl. 12, fig. 124.]

Currently placed as a form of *Heliconius numata numata* (Cramer).

melete Felder & Felder, 1865 : 376 (as sp. of *Heliconius*). 2 ♂, 1 ♀ syntypes. Nova Granada, Lindig. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 8, fig. 83.]

Currently placed as a subspecies of *Heliconius xanthocles* Bates.

melicerta Bates, 1866 : 87 (as sp. of *Heliconius*). 3 ♂ syntypes. Godman-Salvin Coll. 1913–2. 2 ♂, Lion Hill, Panama. McLeannan. 1 ♂, Sta. Marta, N. Colombia. Bouchard. [Pl. 14, fig. 143.]

Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

meliorina Neustetter, 1928*b* : 79 (as form of *Heliconius estrella*). 1 ♂, 1 ♀ syntypes. S. Columbien, Mocoa. 1927. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, November. 1 ♀, Oktober. [Pl. 31, fig. 313.]

Currently placed as a transitional form between *Heliconius erato dignus* Stichel and *Heliconius erato lativitta* Butler.

mellosa Stichel, 1906*b* : 208 (as subsp. of *Colaenis euchroia*). Lectotype ♂. Ecuador. e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M. 1939–1. [Pl. 2, fig. 16.]
Currently placed as a subspecies of *Podotricha euchroia* (Doubleday).
Lectotype designated by Vane-Wright, Ackery & Smiles, 1975 : 615.

melpina Joicey & Kaye, 1917*a* : 414 (as ab. of *Heliconius melpomene melpomene*). Holotype ♀. Guyane Francse., St. Laurent du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 21, fig. 217.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

melpophylla Joicey & Kaye, 1917*b* : 92 (as subsp. of *Heliconius melpomene*). Holotype ♀. Joicey Bequest. Brit. Mus. 1934–120. [Pl. 19, fig. 192.]
Currently placed as a transitional form between *Heliconius melpomene amaryllis* Felder & Felder and *Heliconius melpomene aglaope* Felder & Felder.

messene Felder & Felder, 1862*b* : 418 (as sp. of *Heliconius*). 1 ♂, 4 ♀ syntypes. Bogota. Lindig. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 9, fig. 101.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).

metalilis Butler, 1873*a* : 167 (as sp. of *Heliconius*). 2 ♂, 1 ♀ syntypes. Venezuela. Dyson. 47–9. [Pl. 17, fig. 169.]
Currently placed as a subspecies of *Heliconius ethilla* Godart.

mimulinus Butler, 1873*a* : 168 (as sp. of *Heliconius*). 2 ♂, 1 ♀ syntypes. Bogota. Stevens. 56–142. [Pl. 8, fig. 84.]
Probably best regarded as a synonym of *Heliconius wallacei wallacei* Reakirt.

miraculosa Hering, 1926 : 199 (as sp. of *Dione*). 1 ♂ paratype. Arequipd, Süd Peru. leg. W. Hopp. / Presented by J. J. Joicey Esq., Brit. Mus. 1931–291. [Pl. 1, fig. 6.]
Currently placed as a subspecies of *Dione juno* (Cramer).

mirificus Stichel, 1906*a* : 12 (as subsp. of *Heliconius silvana*). Holotype ♀. Ucayali. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 11, fig. 117.]
Probably best regarded as a synonym of *Heliconius numata illustris* Weymer.

modesta Riffarth, 1900 : 206 (as ab. of *Heliconius vulcanus*). 2 ♂, 1 ♀ syntypes. Paramba, Ecuador. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit, Mus. 1934–120. [Pl. 18, fig. 181.]
Currently placed as a transitional form between *Heliconius melpomene cythera* Hewitson and *Heliconius melpomene vulcanus* Butler.

molina Grose-Smith, 1898 : 70 (as sp. of *Heliconius*). 1 ♂ syntype. Valdevia, Colombia. Pratt, 97. / Ex. Grose Smith. 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 29, fig. 295.]
Currently placed as a transitional form between *Heliconius erato chestertonii* Hewitson and *Heliconius erato hydara* Hewitson.

montanus Salvin, 1871 : 414 (as sp. of *Heliconius*). 1 ♂ syntype. Orosi, Costa Rica. Kramer. / Godman-Salvin Coll. 1913–2. [Pl. 35, fig. 361.]
Currently placed as a subspecies of *Heliconius clysonymus* Latreille.

mutabilis Butler, 1877 : 151 (as sp. of *Heliconius*). 2 ♀ syntypes. 1 ♀, Serpa bush. 22.4.74. / Amazons Trail. 77–64. 1 ♀, Serpa, Amazons. Bates. / Godman-Salvin Coll. 1913–2. [Pl. 23, fig. 230.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

nanna Stichel, 1899*b* : 143 (as sp. of *Heliconius*). 2 ♂, 1 ♀ syntypes. Brasilia, Espirito Santo. e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M. 1939–1. [Pl. 26, fig. 259.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).

nattereri Felder & Felder, 1865 : 275, pl. 47, fig. 8 (as sp. of *Heliconius*). 1 ♂ syntype. Bahia, Beske. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 9, fig. 99.]
The original type-series is clearly syntypic. The specimen included as holotype by Holzinger & Holzinger (1974) is merely an additional syntype.

negroida Joicey & Kaye, 1917*a* : 418, pl. 107, fig. 2 (as ab. of *Heliconius melpomene cybele*). Holotype ♂. Guyane Francse., St-Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig. 222.]
Currently placed as a synonym of *Heliconius melpomene meriana* form *faustina* Staudinger.

negroidens Joicey & Kaye, 1917*a* : 424 (as ab. of *Heliconius melpomene thelxiope?*). 1 ♂ syntype. Guyane Francse., St-Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 23, fig. 234.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene thelxiope* (Hübner).

neustetteri Riffarth, 1908 : 114 (as subsp. of *Heliconius alithea*). 3 ♂, 5 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 2 ♂, 5 ♀, Balzapamba (Ecuad.). R. Haensch S. 1 ♂, Ecuador, Rio Bamba. [Pl. 28, fig. 283.]
Currently placed as a form of *Heliconius cydno alithea* Hewitson.

niepelti Riffarth, 1907*b* : 507, pl. 5, fig. 7 (as form of *Heliconius melpomene aglaope*). 1 ♂ syntype. Pastaza sup., Ecuad. Oct-Dec. 06. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 20, fig. 201.]
Currently placed as a transitional form between *Heliconius melpomene aglaope* Felder & Felder and *Heliconius melpomene plesseni* Riffarth.

nivea Kaye, 1916 : 195 (as ab. of *Heliconius telesiphe*). Lectotype ♂. Pérou, Collection Le. Moult. / Adams Bequest. B.M. 1912–399. [Pl. 35, fig. 359.]
Currently placed as a synonym of *Heliconius telesiphe cretacea* Neustetter.
Lectotype designated by Vane-Wright, Ackery & Smiles, 1975 : 621.

noctis Neustetter, 1926*a* : 36 (as form of *Heliconius penelope*). 1 ♂ syntype. Bolivia. 1925. W. Niepelt. Zirlau. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 25, fig. 249.]
Currently placed as a transitional form between *Heliconius melpomene penelope* Staudinger and *Heliconius melpomene amandus* Grose-Smith & Kirby.

nocturna Riffarth, 1900 : 210 (as ab. of *Heliconius hydara*). Holotype ♂. Venezuela, Fruhstorfer. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 29, fig. 296.]
Currently placed as a transitional form between *Heliconius erato chestertonii* Hewitson and *Heliconius erato hydara* Hewitson.

notabilis Salvin & Godman, 1868 : 145 (as sp. of *Heliconius*). 1 ♂ syntype. Canelos, Ecuador. Pearce. / Godman-Salvin Coll. 1913–2. [Pl. 30, fig. 301.]
Currently placed as a subspecies of *Heliconius erato* (L.).
Described from female specimens only; however, this male is apparently a syntype.

novatus Bates, 1867 : 539 (as sp. of *Heliconius*). 3 ♀ syntypes. Godman-Salvin Coll. 1913–2. 1 ♀, Para. L. Amazons. H. W. Bates. 1 ♀, Para. Bates. 49–49. 1 ♀, Maranham, N. Brazil. T. Belt. [Pl. 16, fig. 163.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

nubifer Butler, 1875 : 224 (as sp. of *Heliconius*). Holotype ♀. Fonteboa, Amazons. Bates. 57–125. [Pl. 10, fig. 112.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).

numata Cramer, [1780] : 17, pl. 297, figs C, D (as sp. of *Papilio*). 1 ♂ syntype. Surinam. Cll. v. d. Capel. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 39, fig. 403.]
Currently placed as a species of *Heliconius* Kluk.

oberthueri Riffarth, 1902 : 162 (as subsp. of *Heliconius erato*). 2 ♀ syntypes. 1 ♀, Berg en Daal, Sur., Juli. Michaelis. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♀, Cayenne. / Levick Bequest. 1941–83. [Pl. 32, fig. 326.]
Currently placed as a transitional form between *Heliconius erato erato* (L.) and *Heliconius erato hydara* (Hewitson).

obscurata Riffarth, 1907b : 505 (as form of *Heliconius melpomene funebris*). Holotype ♂. Berg en Daal, Juli. Michaelis. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 22, fig. 220.]
Currently placed as a form of *Heliconius melpomene meriana* Turner.

obscurifascia Talbot, 1928 : 220 (as form of *Heliconius melpomene burchelli*). Holotype ♀. Melguira, 10 miles [16 km] S. of Diamantino. 2000 ft [610 m] 23.v.–3.vi.27. Matto Grosso. C. L. Collenette. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 25, fig. 258.]
Currently placed as a transitional form between *Heliconius melpomene penelope* Staudinger and *Heliconius melpomene burchelli* Poulton.

obscurior Stichel, 1906*a* : 15 (as subsp. of *Heliconius novatus*). 1 ♂, 1 ♀ syntypes. Bolivia, Titicaca See. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 11. fig. 119.]
Currently placed as a transitional form between *Heliconius numata leopardus* Weymer and *Heliconius numata spadicarius* Weeks.

occidentalis Neustetter, 1928*d* : 258 (as subsp. of *Heliconius ismenius*). 1 ♂, 1 ♀ syntypes. Cantinela, Putamayo. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 13, fig. 132.]
Currently placed as a form of *Heliconius ismenius* Latreille.

ochracea Riffarth, 1907*b* : 511, pl. 5, fig. 12 (as form of *Heliconius erato estrella*). Holotype ♂. Ob. Pastaza, Ecuad., *c*. 1000 m. Cll. Niepelt. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 30, fig. 306.]
Currently placed as a transitional form between *Heliconius erato notabilis* Salvin & Godman and *Heliconius erato lativitta* Butler.

octavia Bates, 1866 : 86 (as sp. of *Heliconius*). 2 ♂ syntypes. Duenas, Guatemala. F. D. G. & O. S. / Godman-Salvin Coll. 1913–2. [Pl. 35, fig. 354.]
Currently placed as a subspecies of *Heliconius hecalesia* Hewitson.

pachinus Salvin, 1871 : 414 (as sp. of *Eueides*). 3 ♂ syntypes. Chiriqui, Panama. Arcé. / Godman-Salvin Coll. 1913–2. [Pl. 28, fig. 287.]

pallens Stichel, 1903 : 19 (as form of *Eueides vibilia vibilia*). Holotype ♀. Espirito-Santo, Brazil. ex. coll. Fruhstorfer. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 4, fig. 41.]

pallida Riffarth, 1907*b* : 513 (as form of *Eueides lampeto fuliginosus*). Holotype ♀. Ob. Pastaza, Ecuad., *c*. 1000 m. Cll. Niepelt. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 4, fig. 37.]
Currently placed as an aberration of *Eueides lampeto acacetes* Hewitson.

palmata Stichel, 1906*a* : 46 (as form of *Heliconius erato estrella*). Holotype ♂. Ucayali. /

Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 30, fig. 310.]
Currently placed as a form of *Heliconius erato lativitta* Butler.

paraensis Riffarth, 1900 : 197 (as sp. of *Heliconius*). 2 ♂ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Para. 6.6.94. 1 ♂, Para 7.10.94. [Pl. 16, fig. 167.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

paraplesius Bates, 1867 : 540 (as sp. of *Heliconius*). 1 ♂ syntype. Maranham, N. Brazil. T. Belt. / Godman-Salvin Coll. 1913–2. [Pl. 8, fig. 81.]
Currently placed as a subspecies of *Heliconius xanthocles* Bates.

pardalinus Bates, 1862 : 555 (as var. of *Heliconius eucoma*). 2 ♂ syntypes. S. Paulo, U. Amazons. H. W. Bates. / Godman-Salvin Coll. 1913–2. [Pl. 13, fig. 137.]
Currently placed as a species of *Heliconius* Kluk.

parva Neustetter, 1928*b* : 77 (as form of *Heliconius melpomene aglaope*). Holotype ♂. S. Colombien, Mocoa. Oktober 1927. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 20, fig. 207.]
Currently placed as a transitional form between *Heliconius melpomene aglaope* Felder & Felder and *Heliconius melpomene bellula* Stichel.

parvimaculata Riffarth, 1900 : 207 (as ab. of *Heliconius clytia*). 8 ♂, 3 ♀ syntypes. Original. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Amazonas, Heyne. / Ex. Coll. Riffarth. 1 ♂, Paricatuba, 16.6.93. 6 ♂, 3 ♀, Obidos, Amazonen strom. VIII–IX.99. ex. coll. H. Fruhstorfer. / Ex. Coll. Riffarth. [Pl. 8, fig. 87.]
Currently placed as a form of *Heliconius wallacei wallacei* Reakirt.

pasithoe Cramer, [1775] : 25, pl. 17, figs A, B (as sp. of *Papilio*). 3 ♂ syntypes. Felder Colln. / Rothschild Bequest. B. M. 1939–1. 1 ♂, No. 2. Pasithoe. Cr., I, 17, A, B. / Surinam Coll. Linep. 1 ♂, Eyndhoven. 1 ♂, Coll. Linep. [Pl. 39, figs 400, 401, 402.]
Currently placed as a synonym of *Heliconius hecale hecale* (Fabricius).

paula Neustetter, 1928*b* : 77 (as form of *Heliconius melpomene aglaope*). Holotype ♂. S. Columbien, Mocoa. Oktober 1927. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 20, fig. 208.]
Currently placed as a transitional form between *Heliconius melpomene aglaope* Felder & Felder and *Heliconius melpomene bellula* Stichel.

peeblesi Joicey & Talbot, 1925 : 647 (as sp. of *Heliconius*). 1 ♂, 1 ♀ syntypes. Merida Dist., Venezuela. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 11, fig. 120.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).

pellucida Srnka, 1885 : 130, pl. 1, fig. 3 (as sp. of *Eueides*). Holotype ♀. Pellucida Type Srnka. / Coll. Srnka assmann Cundinamarca. / Ex. Oberthür Coll. Brit. Mus. 1927–3. [Pl. 5, fig. 49.]
Currently placed as a synonym of *Eueides isabella huebneri* Ménétriés.

penelopides Neustetter, 1927*b* : 229 (as form of *Heliconius melpomene*). Holotype ♂. St. Laurent, Guyana. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 23, fig. 233.]
Currently placed as a transitional form between *Heliconius melpomene thelxiope* (Hübner) and *Heliconius melpomene melpomene* (L.).
The original description is clearly based on one specimen only and the above specimen appears to be the true holotype. Holzinger & Holzinger (1974) also doubtfully include a specimen in the NM, Vienna as the 'Holotype' of *penelopides*.

perchlora Joicey & Kaye, 1917*b* : 94 (as subsp. of *Heliconius elevatus*). Holotype ♂. Boliv. / Ex. Grose Smith. 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 17, fig. 178.]

petiverana Doubleday, 1847 : 103 (as sp. of *Heliconia*). 1 ♂ syntype. Ex. Musaeo Boisduval. / Mexico. / Levick Bequest. 1941–83. [Pl. 29, fig. 292.]
Currently placed as a subspecies of *Heliconius erato* (L.).

philipi Brown, 1975 : 214 (as subsp. of *Heliconius aoede*). Holotype ♂. Salampioni, Bolivia. Rosenb. / Ex. Coll. Herbert Druce, 1913. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 38, fig. 390.]

phyllidis Grose-Smith & Kirby, 1892 : 2, pl. 1, fig. 4 (as sp. of *Heliconius*). 1 ♂ syntype. Boliv. / Ex. Grose Smith. 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 34, fig. 352.]
Currently placed as a form of *Heliconius erato phyllis* (Fabricius).

phyllis Fabricius, 1775 : 463 (as sp. of *Papilio*). 1 ♂ syntype. Papilio Phyllis Fab. Entom. p. 463, n. 86. (In coll. J. Banks.) [Pl. 34, fig. 349.]
Currently placed as a subspecies of *Heliconius erato* (L.).

plesseni Riffarth, 1907*a* : 333 (as form of *Heliconius batesi*). 1 ♂ syntype. Baraneus, Pastazza super. Ecuador. / Ex. Coll. Riffarth. / Original. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 19, fig. 193.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).

praelautus Stichel, 1906*a* : 10 (as subsp. of *Heliconius numatus*). Holotype ♀. Ucayali. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 10, fig. 109.]
Currently placed as a female form of *Heliconius numata arcuella* Druce.

pratti Joicey & Kaye, 1917*b* : 90, pl. 5, fig. 4 (as subsp. of *Heliconius aristiona*). 4 ♀ syntypes. Charape, N. Peru. 4000 ft [1220 m] A. E. & F. Pratt. / Joicey Bequest. Brit. Mus. 1934–120. 3 ♀, Sep.–Oct. 1912. 1 ♀, 1912. [Pl. 10, fig. 107.]
Currently placed as a form of *Heliconius numata aristiona* Hewitson.

primularis Butler, 1869 : 18, pl. 9, fig. 2 (as sp. of *Heliconius*). 1 ♂, 1 ♀ syntypes. 1 ♂, Guayaquil. Stevens. 55–48. 1 ♀, Rio Napo. Stevens. 51–70. [Pl. 38, fig. 387.]
Currently placed as a subspecies of *Heliconius eleuchia* Hewitson.

primus Joicey & Kaye, 1917*a* : 414 (as ab. of *Heliconius melpomene melpomene*). Holotype ♂. Guyane Francse., St. Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 21, fig. 214.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene meriana* Turner.

problemata Neustetter, 1928*b* : 78 (as form of *Heliconius erato estrella*). 1 ♂ syntype. S. Columbien, Mocoa. November 1927. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 31, fig. 314.]
Currently placed as a transitional form between *Heliconius erato dignus* Stichel and *Heliconius erato lativitta* Butler.

procula Doubleday, 1848 : 146, pl 20, fig. 1 (as sp. of *Eueides*). 1 ♂ syntype. Venezuela. Dyson. 46–75. [Pl. 3, fig. 30.]

protea Joicey & Kaye, 1917*a* : 427 (as ab. of *Heliconius erato*). Holotype ♀. Guyane Francse., St. Jean du Maroni, Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 33, fig. 332.]
Currently placed as a transitional form between *Heliconius erato erato* (L.) and *Heliconius erato hydara* Hewitson.

punctarius Joicey & Kaye, 1917*a* : 422 (as ab. of *Heliconius melpomene thelxiope*). Holotype ♀. Guyane Francse., St. Jean du Maroni. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 24, fig. 240.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene thelxiope* (Hübner).

punctata Hall, 1936 : 276 (as subsp. of *Heliconius charithonia*). 7 ♂, 7 ♀ syntypes. 6 ♂, 7 ♀,

St. Kitts, B. W. I. December 1935. A. Hall. / Brit. Mus. 1936–736. 1 ♂, Antigua. J. W. Gregory. 99–164. [Pl. 36, fig. 366.]
Currently placed as a subspecies of *Heliconius charitonia* (L.).

pura Niepelt, 1907*b* : 42 (as form of *Heliconius batesi plesseni*). 2 ♂, 3 ♀ syntypes. Original. 1 ♂, Ob. Pastaza, Ecuad. *c.* 1000 m. Cll. Niepelt. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, 1 ♀, R. Pastaza. / Rothschild Bequest. B. M. 1939–1. 1 ♀, Ob. Pastaza, Ecuad., *c.* 1000 m. Cll. Niepelt. / Rothschild Bequest. B. M. 1939–1. 1 ♀, Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 19, fig. 196.]
Currently placed as a form of *Heliconius melpomene plesseni* Riffarth.

pygmalion Fruhstorfer, 1912 : 14 (as subsp. of *Metamandana dido*). Holotype ♀. Obidos. Fruhstorfer Coll. B. M. 1937–285. [Pl. 1, fig. 1.]
Currently placed as a species of *Philaethria* Billberg.

quirina Cramer, [1775] : 101, pl. 65, figs A, B (as sp. of *Papilio*). 1 ♂, 1 ♀ syntypes. Coll. Linep. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 39, figs 397, 398.]
Currently placed as a synonym of *Heliconius doris* (L.).

quitalena Hewitson, [1853] : pl. 1, fig. 3 (as sp. of *Heliconia*). 3 ♂ syntypes. 2 ♂, Quito. Hewitson Coll. 79.69. 1 ♂, Ecuador. Hewitson Coll. 79.69. [Pl. 15, fig. 155.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

radiata Oberthür, 1916 : 33, pl. 404, fig. 3479 (as form of *Heliconius microclea notabilis*). Holotype ♀. Guayaquil. / Levick Bequest. B. M. 1941–83. [Pl. 30, fig. 303.]
Currently placed as a transitional form between *Heliconius erato notabilis* Salvin & Godman and *Heliconius erato lativitta* Butler.

radiosus Butler, 1873*a* : 166 (as sp. of *Heliconius*). 1 ♀ syntype. Villa Nova, Amazons. Bates. 55–44. [Pl. 16, fig. 165.]
Currently placed as a subspecies of *Heliconius pardalinus* Bates.

rhea Cramer, [1775] : 85, pl. 54, figs C, D (as sp. of *Papilio*). 1 ♂ syntype. Surin. Coll. Linep. / No. 8. rhea. Cr., 54, C, D. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 39, fig. 399.]
Currently placed as a synonym of *Heliconius sara thamar* (Hübner).

riffarthi Stichel, 1903 : 31, pl. 1, fig. 25 (as ab. of *Eueides eanes*). 2 ♂ syntypes. 1 ♂, Süd-Peru, Chanchamayo. e. c. H. Stichel. / Typus. 1 ♂, Süd-Peru, Pozuzo. e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M. 1939–1. [Pl. 4, fig. 46.]
Currently placed as a transitional form between *Eueides eanes heliconioides* Felder & Felder and *Eueides eanes pluto* Stichel.

riffarthi Stichel, 1906*a* : 26, pl. 2, fig. 8a (as subsp. of *Heliconius melpomene*). 2 ♀ syntypes. Ucayali. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 19, fig. 189.]
Currently placed as a transitional form between *Heliconius melpomene xenoclea* Hewitson and *Heliconius melpomene aglaope* Felder & Felder.

rondonia Brown, 1973 : 2 (as subsp. of *Heliconius astraea*). 5 ♂ paratypes. River System Cuyaba-Corumba, Matto Grosso, Brazil. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 9, fig. 92.]

roraima Turner, 1966*a* : 109 (as subsp. of *Heliconius elevatus*). Holotype ♂, 3 ♂, 1 ♀ paratypes. Holotype ♂, 1 ♂, 1 ♀ paratypes, Roraima, B. Guiana. H. Whitely. / Godman-Salvin Coll. 1913–2. 1 ♂ paratype, ?Roraima. Crowley Bequest. 1901–78. 1 ♂ paratype, Roraima, Br. Guiana. Crowley Bequest. 1901–78. [Pl. 17, fig. 175.]

rosacea Riffarth, 1907*b* : 512, pl. 5, fig. 14 (as form of *Heliconius erato simplex*). Holotype ♂.

Pastaza sup., Ecuador. Oct-Dez. 06. / Original. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 30, fig. 302.]
Currently placed as a form of *Heliconius erato notabilis* Salvin & Godman.

roseoflava Neustetter, 1926*b* : 292 (as form of *Heliconius erato*). 2 ♂ syntypes. St. Laurent, Guyana. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 33, fig. 333.]
Currently placed as a transitional form between *Heliconius erato erato* (L.) and *Heliconius erato hydara* Hewitson.

rosina Boisduval, 1870 : 29 (as sp. of *Heliconia*). 1 ♂ syntype. Mexiq. / Ex. Musaeo Boisduval. / Levick Bequest. 1941–83. [Pl. 18, fig. 179.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).

rothschildi Niepelt, 1909 : 107 (as form of *Heliconius erato estrella*). 1 ♂, 1 ♀ syntypes. Ecuador, Canelos. 800 m. / Rothschild Bequest. B. M. 1939–1. [Pl. 30, fig. 305.]
Currently placed as a transitional form between *Heliconius erato notabilis* Salvin & Godman and *Heliconius erato lativitta* Butler.

rubellius Grose-Smith & Kirby, 1892 : 1, pl. 1, figs 1, 2 (as sp. of *Heliconius*). 1 ♂ syntype. Columb. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 28, fig. 279.]
Currently placed as a hybrid between *Heliconius melpomene melpomene* (L.) and *Heliconius cydno cydno* Doubleday.

rubescens Stichel, 1906*a* : 26 (as form of *Heliconius melpomene riffarthi*). Holotype ♂. Chuchurras, Peru. 320 m. Hoffmann. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 19, fig. 190.]
Currently placed as a transitional form between *Heliconius melpomene xenoclea* Hewitson and *Heliconius melpomene aglaope* Felder & Felder.

rubicunda Niepelt, 1907*b* : 42 (as form of *Heliconius batesi plesseni*). 1 ♂, 1 ♀ syntypes. Original. 1 ♂, Rothschild Bequest. B. M. 1939–1. 1 ♀, Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 19, fig. 194.]
Currently placed as a form of *Heliconius melpomene plesseni* Riffarth.

rubra Stichel, 1906*a* : 26 (as form of *Heliconius melpomene aglaope*). 2 ♂ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Cuzco. 1 ♂, Marcapata, Cuzco, Peru. [Pl. 20, fig. 205.]
Probably best regarded as a synonym of *Heliconius melpomene aglaope* Felder & Felder.

rubrizona Joicey & Kaye, 1917*b* : 93, pl. 4, fig. 7 (as subsp. of *Heliconius erato*). 1 ♂ syntype. Santarem. / Ex. Grose Smith. 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 31, fig. 319.]
Currently placed as a form of *Heliconius erato hydara* Hewitson.

rufolimbata Butler, 1873*a* : 169 (as sp. of *Heliconius*). 1 ♂ syntype. Rio Tapayos, Brazil. Bates. 53–27. [Pl. 24, fig. 242.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L.) and *Heliconius melpomene madeira* Riley.

schmassmanni Joicey & Talbot, 1925 : 647 (as subsp. of *Heliconius elevatus*). Holotype ♂. River System Cuyaba–Corumba, Matto Grosso, Brazil. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 17, fig. 177.]

schulzi Riffarth, 1899 : 405 (as sp. of *Heliconius*). 2 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♀, Para, 21.12.93. A. Schulz. 1 ♀, Para, 2.93. A. Schulz. [Pl. 16, fig. 164.]
Currently placed as a synonym of *Heliconius hecale novatus* Bates.

seitzi Stichel, 1903 : 6, pl. 1, fig. 6 (as subsp. of *Eueides isabella*). 1 ♂ syntype. Santa Jnez.

(Ecuad.) R. Haensch S. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 5, fig. 52.]
Currently placed as a form of *Eueides isabella dissoluta* Stichel.

semiphorus Staudinger, 1896 : 284 (as var. of *Heliconius metaphorus*). 1 ♂ syntype. Rio Dagua. Stgr. / Origin. / Ex. Coll. Riffarth. [Pl. 14, fig. 145.]
Currently placed as a form of *Heliconius hecale melicerta* Bates.

semirubra Joicey & Kaye, 1917*b* : 90 (as ab. of *Heliconius clysonimus apicalis*). 1 ♂ syntype. Siato, Rio Siato, Slopes of Choco, Columbia. 5200 ft [1580 m] Sept. '09. / Ex. Coll. Herbert Druce. 1913. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 36, fig. 363.]
Currently placed as a transitional form between *Heliconius clysonymus clysonymus* Latreille and *Heliconius clysonymus hygiana* Hewitson.

seraphini Talbot, 1932 : 191 (as sp. of *Heliconius*). Holotype ♂. Guyane, St. Laurent. Joicey Bequest. Brit. Mus. 1934–120. [Pl. 12, fig. 123.]
Currently placed as a hybrid between *Heliconius numata numata* (Cramer) and *Heliconius melpomene thelxiope* (Hübner).

serpensis Kaye, 1919 : 218 (as subsp. of *Heliconius burneyi*). 1 ♂, 1 ♀ paratypes. Serpa, Lower Amazon. Jan–March 1914. A. Hall. / Brit. Mus. 1933–61. [Pl. 8, fig. 90.]
Currently placed as a transitional form between *Heliconius burneyi burneyi* (Hübner) and *Heliconius burneyi catherinae* Staudinger.

silvana Stoll, [1781] : 143, pl. 366, figs C, D (as sp. of *Papilio*). 1 ♀ syntype. No. 32. Silvana. Cr., IV, 364, C, D. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 39, fig. 404.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).

silvaniformis Joicey & Kaye, 1917*b* : 89, pl. 5, fig. 7 (as subsp. of *Heliconius numata*). 3 ♂ syntypes. Para, Lower Amazon. Jan–March 1914. A. Hall. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 12, fig. 127.]
Currently placed as a form of *Heliconius numata superioris* Butler.

simplex Riffarth, 1906 : 56 (as form of *Heliconius erato estrella*). Holotype ♂. Cajon, Süd-Peru. Indeinw., Callao. / Original. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 33, fig. 336.]
Currently placed as a transitional form between *Heliconius erato lativitta* Butler and *Heliconius erato amphitrite* Riffarth.

sincerus Riffarth, 1907*b* : 501 (as subsp. of *Heliconius numatus*). 1 ♂, 1 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Amazon inf. 1 ♀, Venezuela. [Pl. 12, fig. 125.]
Currently placed as a form of *Heliconius numata superioris* Butler.

sisyphus Salvin, 1871 : 413 (as sp. of *Heliconius*). 2 ♂ syntypes. Cosnipata Vall. E. Peru. H. Whitely. / Godman-Salvin Coll. 1913–2. [Pl. 15, fig. 158.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

sotericus Salvin, 1871 : 414 (as sp. of *Heliconius*). Lectotype ♂, 5 ♂ paralectotypes. Guaymay Ecuador. C. Buckley. / Godman-Salvin Coll. 1913–2. [Pl. 35, fig. 358.]
Currently placed as a subspecies of *Heliconius telesiphe* Doubleday.
Lectotype designated by Vane-Wright, Ackery & Smiles, 1975 : 621.

sperata Riffarth, 1907*b* : 513 (as form of *Heliconius erato phyllis*). 2 ♂, 1 ♀ syntypes. Original. Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Cajon, Süd-Peru. Indienw., Callao. 1 ♂, 1 ♀, Prov. Sara, Dep. St. Cruz, Süd Bolivia. [Pl. 34, fig. 350.]
Currently placed as a transitional form between *Heliconius erato phyllis* (Fabricius) and *Heliconius erato venustus* Salvin.

spoliata Stichel, 1903 : 9 (as ab. of *Heliconius isabella huebneri*). Holotype ♀. S. America, Caucathal. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 5, fig. 51.]
Currently placed as a form of *Eueides isabella eva* Fabricius.

sprucei Bates, 1864*a* : 57 (as sp. of *Heliconius*). 4 ♂, 1 ♀ syntype. Chimborazo, Ecuador. Spruce. Bates Coll. / Godman-Salvin Coll. 1913–2. [Pl. 37, fig. 378.]
Currently placed as a subspecies of *Heliconius sara* (Fabricius).

sticheli Riffarth, 1907*b* : 509, pl. 5, fig. 10 (as subsp. of *Heliconius vulcanus*). 4 ♂, 1 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 3 ♂, 1 ♀, Paramba, Ecuador. 1 ♂, Paramba, 3,500 ft II.97. Dry Season. (Rosenberg). [Pl. 18, fig. 182.]
Currently placed as a transitional form between *Heliconius melpomene cythera* Hewitson and *Heliconius melpomene vulcanus* Butler.

straminea Riley, 1926 : 242 (as subsp. of *Colaenis euchroia*). Holotype ♂. Balsapamba, Ecuador. / Crowley Bequest. 1901–78. [Pl. 2, fig. 17.]
Currently placed as a subspecies of *Podotricha euchroia* (Doubleday).

stupenda Stichel, 1907 : 13 (as form of *Colaenis phaetusa*). Holotype ♂. Panama, Bugaba. e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M. 1939–1. [Pl. 1, fig. 3.]
Currently placed as a form of *Dryadula phaetusa* (L.).

stygianus Joicey & Kaye, 1917*a* : 423 (as ab. of *Heliconius melpomene thelxiope*). Holotype ♂. Guyane Francse., St-Jean du Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934-120. [Pl. 23, fig. 231.]
Currently placed as a transitional form between *Heliconius melpomene thelxiope* (Hübner) and *Heliconius melpomene melpomene* (L.).

styx Niepelt, 1921 : 19 (as form of *Heliconius anderida*). 2 ♂ syntypes. Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Dep. Malacatan, Guatemala. [Pl. 13, fig. 138.]
Currently placed as an aberrational form of *Heliconius hecale fornarina* Hewitson.

submarginatus Fassl, 1912 : 56 (as subsp. of *Heliconius weymeri*). 3 ♂, 3 ♀ syntypes. Rio Aguacatal, Colomb., W. Codr. 2000 m. Coll. Fassl. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 27, fig. 275.]
Currently placed as a form of *Heliconius cydno weymeri* Staudinger.

subnubilis Stichel, 1906*a* : 14, pl. 1, fig. 4a (as subsp. of *Heliconius novatus*). 2 ♀ syntypes. Juanjuy, Peru. / Original. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 11, fig. 116.]
Currently placed as a form of *Heliconius numata illustris* Weymer.

sulphureomaculata Fassl, 1914 : 43 (as ab. of *Heliconius weymeri*). 1 ♀ syntype. Rio Aguacatal, Colomb., W. Cord. 2000 m. Coll. Fassl. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 27, fig. 274.]
Currently placed as a form of *Heliconius cydno weymeri* Staudinger.

superba Lathy, 1906 : 453, pl. 34, fig. 2 (as var. of *Heliconius xenoclea*). Holotype ♂. Rio Colorado, Peru. 2500 ft [760 m] ix.03. Watkins & Tomlinson. / Adams Bequest. B. M. 1912–399. [Pl. 18, fig. 188.]
Currently placed as a transitional form between *Heliconius melpomene xenoclea* Hewitson and *Heliconius melpomene aglaope* Felder & Felder.

superioris Butler, 1875 : 224 (as sp. of *Heliconius*). 1 ♂, 1 ♀ syntypes. 1 ♂, Villa Nova, Amazons. Bates. 55–75. 1 ♀, Ega, Braz. [Pl. 12, fig. 126.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).

surdus Stichel, 1903 : 27, pl. 1, fig. 20 (as subsp. of *Heliconius thales*). 1 ♂, 1 ♀ syntypes.

Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Demerara. 1 ♀, Cameta. 12.92. [Pl. 5, fig. 58.]
Currently placed as a form of *Eueides tales tales* (Cramer).

tabaconas Brown, 1975 : 221 (as subsp. of *Heliconius clysonymus*). Holotype ♂, 1 ♂, 2 ♀ paratypes. Joicey Bequest. Brit. Mus. 1934–120. Holotype ♂, Charape, N. Peru, 4000 ft [1220 m], Sep.–Oct. 1912. A. & E. Pratt. 1 ♂, 1 ♀, River Tabaconas, N. Peru, 6000 ft [1800 m] A. E. & F. Pratt. 1912. 1 ♀, Charape, N. Peru. 4000 ft [1220 m] A. E. & F. Pratt. [Pl. 38, fig. 391.]

talboti Joicey & Kaye, 1917*b* : 88, pl. 5, fig. 3 (as subsp. of *Heliconius numata*). 5 ♂, 1 ♀ syntypes. Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, River Chinchipe, N. Peru. 6000 ft [1800 m] Sep. 1912. A. & E. Pratt. 1 ♂, Charape, N. Peru. 4000 ft [1220 m] Sept.–Oct. 1912. A. & E. Pratt. 1 ♂, Rentema Falls, Upper Maranon, N. Peru. 1000 ft [300 m] A. & E. Pratt. 2 ♂, 1 ♀, Charape, N. Peru. 4000. A. E. & F. Pratt. 1912. [Pl. 11, fig. 115.]

tarapotensis Riffarth, 1901 : 59 (as subsp. of *Heliconius aristiona*). 1 ♂, 2 ♀ syntypes Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Tarapota, Peru. Garlepp. 2 ♀, Yuan-yui, Peru. Garlepp. [Pl. 10, fig. 105.]
Currently placed as a form of *Heliconius numata euphone* Felder & Felder.
Described from Tarapota.

tecta Riffarth, 1900 : 207 (as ab. of *Heliconius erato*). 1 ♂ syntype. Columbien. ex. coll. Suffert. / Original. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 9, fig. 94.]
Currently placed as a form of *Heliconius doris doris* (L.).

telchinia Doubleday, 1847 : pl. 14, fig. 4 (as sp. of *Heliconia*). 1 ♀ syntype. Honduras. Purch. from Dyson. 45–123. [Pl. 12, fig. 129.]
Currently placed as a subspecies of *Heliconius ismenius* Latreille.

telesiphe Doubleday, 1847 : 103, pl. 15, fig. 2 (as sp. of *Heliconia*). Lectotype ♂, 1 ♂ paralectotype. Bolivia. Bridges. 46–76. [Pl. 35, fig. 360.]
Currently placed as a species of *Heliconius* Kluk.
Lectotype designated by Vane-Wright, Ackery & Smiles, 1975 : 620.

telesiphe Hewitson, 1867*b* : 564 (as sp. of *Colaenis*). Lectotype ♂, 2 ♂, 1 ♀ paralectotypes. Ecuador. Hewitson Coll. 79.69. [Pl. 2, fig. 19.]
Currently placed as a species of *Podotricha* Michener.
Lectotype designated by Vane-Wright, Ackery & Smiles, 1975 : 617.

telloides Joicey & Talbot, 1925 : 648 (as ab. of *Heliconius erato*). Holotype ♀. Guyane Francaise, Godebert-Maroni. Collection Le Moult. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 33, fig. 331.]
Currently placed as a transitional form between *Heliconius erato erato* (L.). and *Heliconius erato hydara* (Hewitson).

tellus Oberthür, 1902 : pl. 3, fig. 26 (as var. of *Heliconius vesta*). Holotype ♂. Cayenne. / Levick Bequest. 1941–83. [Pl. 32, fig. 330.]
Currently placed as a transitional form between *Heliconius erato erato* (L.) and *Heliconius erato hydara* Hewitson.

temerinda Hewitson, 1873 : pl. 7, fig. 23 (as sp. of *Heliconia*). 1 ♂ syntype. Villagomes, N. Granada. / Hewitson Coll. 79.69. [Pl. 26, fig. 268.]
Currently placed as a form of *Heliconius cydno hermogenes* Hewitson.

thetis Boisduval, 1870 : 29 (as sp. of *Heliconia*). Holotype ♀. Nicaragua. / Ex Musaeo Boisduval. / Levick Bequest. 1941–83. [Pl. 6, fig. 70.]
Currently placed as a subspecies of *Heliconius metharme* Erichson.

theudela Hewitson, 1874 : 224 (as sp. of *Heliconia*). 1 ♂ syntype. Panama. Hewitson Coll. 79.69. [Pl. 37, fig. 376.]
Currently placed as a subspecies of *Heliconius sara* (Fabricius).

thyana Felder & Felder, 1860 : 105 (as sp. of *Eueides*). 1 ♀ syntype. Brazil Mus. Type. / Rothschild Bequest. B. M. 1939–1. [Pl. 4, fig. 43.]
Currently placed as a female form of *Eueides pavana* Ménétriés.

timareta Hewitson, 1867*b* : 563 (as sp. of *Heliconia*). 1 ♂ syntype. Ecuador. Hewitson Coll. 79.69. [Pl. 28, fig. 286.]
Currently placed as a species of *Heliconius* Kluk.

tithraustes Salvin, 1871 : 415 (as sp. of *Colaenis*). Lectotype ♂, 4 ♂ paralectotypes Godman-Salvin Coll. 1915–3. Lectotype ♂, 1 ♂ paralectotype, Rio Topo, Ecuador, C. Buckley Druce Coll. 1 ♂ paralectotype, Canelos, Ecuador. 1 ♂ paralectotype, Canelos, Ecuador, Pearce. 1 ♂ paralectotype, Santa Inez, Buckley. [Pl. 2, fig. 18.]
Currently placed as a subspecies of *Podotricha telesiphe* (Hewitson).
Lectotype designated by Vane-Wright, Ackery & Smiles, 1975 : 618.

titio Stichel, 1907 : 12 (as subsp. of *Colaenis iulia*). 2 ♂, 1 ♀ syntypes. Typus. / Rothschild Bequest. B. M. 1939–1. 1 ♂, 1 ♀, Sta. Cruz, Süd Bolivia. / e. c. H. Stichel. 1 ♂, Bolivia, Yungas d. l. Paz. e. c. H. Stichel. [Pl. 3, fig. 25.]
Currently placed as a subspecies of *Dryas iulia* (Fabricius).

tolima Fassl, 1912 : 55 (as sp. of *Heliconius*). 5 ♂, 4 ♀ syntypes. 3 ♂, 1 ♀, Canon del Tolima. Columb. Cent. Cord. 1700 m. Coll. Fassl. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, 1 ♀, Cañon del Tolima. Columbien. 1700 m. Fassl. / Ex. Coll. Herbert Druce. 1913. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Cavon del Tolima 7700 m. Dec. 09. / Levick Bequest. 1941–83. 1 ♀, XI. 09. Cañon del Tolima. 1700 m. / Levick Bequest. 1941–83. 1 ♀, Cañon del Mte Tolima, Colombia 1700 m. 12.09 / Adams Bequest. B. M. 1912–399. [Pl. 7, fig. 73.]
Currently placed as a subspecies of *Heliconius hecuba* Hewitson.

translata Joicey & Kaye, 1917*b* : 91 (as ab. of *Heliconius numata superioris*). 1 ♀ syntype. Manaos, Lower Amazon, Jan.–March 1914. A. Hall. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 11, fig. 121.]
Currently placed as a form of *Heliconius numata mavors* Weymer.

tristis Riffarth, 1900 : 210 (as ab. of *Heliconius petiverana*). Holotype ♂. Chiriqui. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 31, fig. 315.]
Currently placed as a transitional form between *Heliconius erato hydara* Hewitson and *Heliconius erato petiverana* Doubleday.

turneri Brown & Benson, 1975 : 2 (as subsp. of *Heliconius demeter*). Holotype ♂. Ypiranga, H. Boy. xi. 29. [Pl. 36, fig. 373.]

tyche Bates, 1862 : 559 (as sp. of *Heliconius*). 1 ♂ syntype. Serpa, Amazons. Bates. / Godman-Salvin coll. 1913–2. [Pl. 24, fig. 243.]
Currently placed as a transitional form between *Heliconius melpomene melpomene* (L) and *Heliconius melpomene madeira* Riley.

umbratilis Röber, 1927 : 402 (as subsp. of *Eueides edias*). 2 ♂, 1 ♀ syntypes. 1 ♂, 1 ♀, Sierra Nevada de Sta. Marta, S. Columbien, S. Am. Coll. Dr. Krüger. W. Niepelt, Zirlau. / Brit. Mus. 1928–151. 1 ♂, Sierra Nevada de Sta. Marta, Columbien, S. Am. 1500 m. Juni 1925. Coll. Dr. Krüger. W. Niepelt, Zirlau. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 3, fig. 27.]
Currently placed as a form of *Eueides procula edias* Hewitson.

unifasciatus Butler, 1873*a* : 169 (as sp. of *Eueides*). 2 ♂ syntypes. Ega. Amazons. Bates 57–20. [Pl. 4, fig. 42.]
Currently placed as a subspecies of *Eueides vibilia* (Godart).

unimaculata Hewitson, 1869*b* : 10 (as sp. of *Heliconia*). 1 ♂ syntype. Ecuador. Hewitson Coll. 79.69. [Pl. 20, fig. 200.]
Currently placed as a transitional form between *Heliconius melpomene plesseni* Riffarth and *Heliconius melpomene aglaope* Felder & Felder.

unipuncta Joicey & Kaye, 1917*b* : 93, pl. 6, fig. 8 (as ab. of *Heliconius erato amphitrite*). 2 ♂ syntypes. Tirapata, Pérou. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 33, fig. 338.]
Currently placed as a form of *Heliconius erato amphitrite* Riffarth.

vegetissima Stichel, 1903 : 8 (as ab. of *Eueides isabella*). Holotype ♀. Santa Jnéz (Ecuad.). R. Haensch S. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 5, fig. 53.]
Currently placed as a form of *Eueides isabella dissoluta* Stichel.

venustus Salvin, 1871 : 413 (as sp. of *Heliconius*). 1 ♂ syntype. Apolobamba, Bolivia. Pearce. / Godman-Salvin Coll. 1913–2. [Pl. 33, fig. 339.]
Currently placed as a subspecies of *Heliconius erato* (L.).

veraepacis Bates, 1864*a* : 57 (as sp. of *Heliconius*). 4 ♂, 1 ♀ syntypes. Forests of N. Vera Paz. F. D. G. & O. S. / Godman-Salvin Coll. 1913–12. [Pl. 36, fig. 374.]
Currently placed as a subspecies of *Heliconius sara* (Fabricius).

vereatta Stichel, 1912 : 1 (as form of *Heliconius hermathena*). Holotype ♂. Faro. v. 1911. Ducke. / N. Brasilien, Faro. e. c. H. Stichel. / Rothschild Bequest. B. M. 1939–1. [Pl. 28, fig. 288.]
Currently placed as a subspecies of *Heliconius hermathena* Hewitson.

vetustus Butler, 1873*a* : 165 (as sp. of *Heliconius*). 1 ♀ syntype. Demerara. Ex. Mus. Milne. 1464b. [Pl. 16, fig. 162.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

vialis Stichel, 1903 : 20, pl. 1, figs 14, 15 (as subsp. of *Eueides vibilia*). 1 ♂ syntype. Columb. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 4, fig. 39.]

vicinalis Stichel, 1903 : 21 (as subsp. of *Eueides vibilia*). 2 ♀ syntypes. Palmar (Ecuad.). R. Haensch S. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 4, fig. 40.]

viculata Riffarth, 1900 : 211 (as var. of *Heliconius phyllis*). 11 ♂, 3 ♀ syntypes. Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. 1 ♂, Cayenne. 1 ♂, Chiriqui. 1 ♂, Paricatuba by Santarem, 14.6.93. 1 ♂, Venezuela, Porto Cabello. 3 ♂, Surinam. 1 ♂, Surinam, H. Stichel. 2 ♂, British Guayana. 1 ♂, Bersaba, Surinam. 1898–9. Michls. 1 ♀, Paricatuba. 13.6.93. 1 ♀, Santarem. 6.5.93. 1 ♀, Obidos. [Pl. 31, fig. 318.]
Currently placed as a form of *Heliconius erato hydara* (Hewitson).

virgata Stichel, 1902 : 355 (as ab. of *Heliconius melpomene timareta*). 1 ♂ syntype. Santa Jnez, (Ecuad.). R. Haensch S. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 38, fig. 392.]
Currently placed as a form of *Heliconius timareta* Hewitson.

viridana Stichel, 1906*a* : 35 (as form of *Heliconius doris viridis*). Holotype ♂. Colombia, Magdalena s. e. c. H. Stichel. / Typus. / Rothschild Bequest. B. M. 1939–1. [Pl. 9, fig. 95.]
Currently placed as a form of *Heliconius doris eratonius* Staudinger.

vittatus Butler, 1873*a* : 166 (as sp. of *Heliconius*). 1 ♂ syntype. Bogota. Stevens. 56–142. [Pl. 15, fig. 154.]
Currently placed as a form of *Heliconius hecale ithaca* Felder & Felder.

vulcanus Butler, 1865 : 433, pl. 25, fig. 5 (as sp. of *Heliconia*). 1 ♂ syntype. 1763a. [Pl. 18, fig. 180.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).
Described from Demerera and Panama.

vulgiformis Butler & Druce, 1872 : 102 (as sp. of *Eueides*). 1 ♀ syntype. Costa Rica. Van Patten. Druce Coll. / Godman-Salvin Coll. 1913–2. [Pl. 3, fig. 28.]
Currently placed as a subspecies of *Eueides procula* Doubleday.

warneri Hall, 1936 : 276 (as subsp. of *Colaenis julia*). 1 ♀ syntype. St. Kitts, B. W. I. December 1935, A. Hall. / Brit. Mus. 1936–736. [Pl. 3, fig. 24.]
Currently placed as a synonym of *Dryas iulia iulia* (Fabricius).

wernickei Weymer, 1906 : 68 (as sp. of *Heliconius*). Holotype ♂. Bogota, Columbien. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 27, fig. 277.]
Currently placed as a hybrid between *Heliconius melpomene melpomene* (L.) and *Heliconius cydno cydno* Doubleday.

weymeri Staudinger, 1896 : 287 (as sp. of *Heliconius*). 1 ♂, 1 ♀ syntypes. R. Dagua, Columb. / Ex. Grose Smith. 1910. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 27, fig. 273.]
Currently placed as a subspecies of *Heliconius cydno* Doubleday.

xanthicus Bates, 1864*a* : 57 (as sp. of *Heliconius*). 1 ♀ syntype. Lion Hill, Panama. McLeannan. / Godman-Salvin Coll. 1913–2. [Pl. 14, fig. 147.]
Currently placed as a transitional form between *Heliconius hecale melicerta* Bates and *Heliconius hecala zuleika* Hewitson.

xanthocles Bates, 1862 : 561 (as sp. of *Heliconius*). 1 ♂ syntype. Demerara, Brit. Guiana. Bates Coll. / Godman-Salvin Coll. 1913–2. [Pl. 7, fig. 79.]

xenoclea Hewitson, [1853] : pl. 1, fig. 1 (as sp. of *Heliconia*). 1 ♂ syntype. Hewitson Coll. 79.69. [Pl. 18, fig. 187.]
Currently placed as a subspecies of *Heliconius melpomene* (L.).

xenophanes Felder & Felder, 1865 : 377, pl. 46, figs 14, 15 (as sp. of *Eueides*). 1 ♂ syntype. Bogota. Lindig. Type. / Felder Colln. / Rothschild Bequest. B. M. 1939–1. [Pl. 6, fig. 59.]
Currently placed as a subspecies of *Eueides tales* (Cramer).

zelinde Butler, 1869 : 17, pl. 9, fig. 1 (as sp. of *Heliconius*). 1 ♂ syntype. W. Coast of America. Kellet & Wood. 50–12. [Pl. 27, fig. 270.]
Currently placed as a subspecies of *Heliconius cydno* Doubleday.

zobeide Butler, 1869 : 18, pl. fig. 3 (as sp. of *Heliconius*). 1 ♂ syntype. Para. Mrs Smith. 45–70. [Pl. 37, fig. 382.]
Currently placed as a form of *Heliconius antiochus alba* Riffarth.

zobrysi Frushstorfer, 1910 : 194 (as subsp. of *Heliconius aulicus*). 1 ♂ syntype. Brasilien, M. Grosso. Fruhstorfer. / Fruhstorfer Coll. B. M. 1937–285. [Pl. 12, fig. 130.]
Currently placed as a subspecies of *Heliconius numata* (Cramer).

zuleika Hewitson, [1853] : pl. 3, fig. 10 (as sp. of *Heliconia*). 2 ♂, 1 ♀ syntypes. Nicaragua. Hewitson Coll. 79.69. [Pl. 13, fig. 140.]
Currently placed as a subspecies of *Heliconius hecale* (Fabricius).

zygia Riffarth, 1907*b* : 504, pl. 5, fig. 5 (as form of *Heliconius anderida melicerta*). 1 ♂ syntype. Columb. / Original. / Ex. Coll. Riffarth. / Joicey Bequest. Brit. Mus. 1934–120. [Pl. 14, fig. 144.]
Currently placed as a form of *Heliconius hecale melicerta* Bates.

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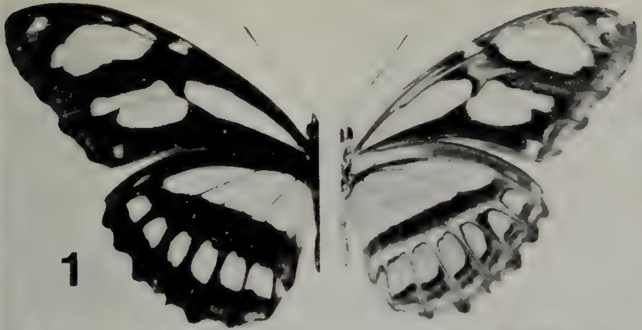
D

PLATE 1

Upper- and underside

FIG. 1. *Metamandana dido pygmalion* Fruhstorfer, holotype ♀ (Obidos).
FIG. 2. *M. dido diatonica* Fruhstorfer, holotype ♂ (Honduras, San Pedro Sula).
FIG. 3. *Colaenis phaetusa* form *stupenda* Stichel, holotype ♂ (Bugaba, Panama).
FIG. 4. *Colaenis phaetusa* form *deleta* Stichel, holotype ♂ (Paraguay, Nuev. Germania).
FIG. 5. *C. phaetusa* form *lutulenta* Stichel, holotype ♀ (Paraguay, Nuev. Germania).
FIG. 6. *Dione miraculosa* Hering, paratype ♂ (Arequipa, Süd-Peru).
FIG. 7. *Agraulis andicola* Bates, syntype ♂ (Tacunga, Ecuador).
FIG. 8. *Dione glycera gnophota* Stichel, syntype ♂ (Colombia, Cordill. p. Bogota).
FIG. 9. *D. moneta butleri* Stichel, syntype ♂ (Colombia, R. Magdalena).
FIG. 10. *D. vanillae incarnata* Riley, lectotype ♂ (Near Durango City, Mexico).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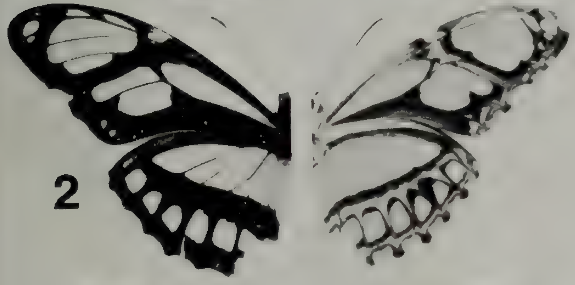
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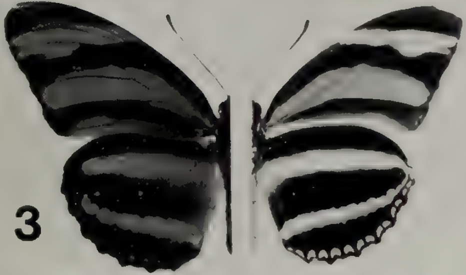
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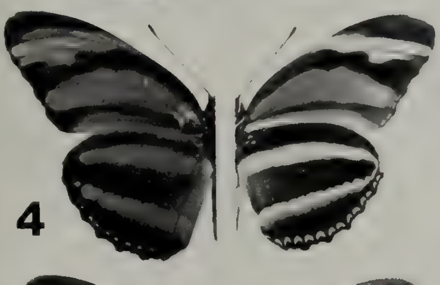
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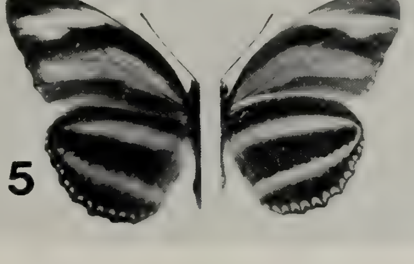
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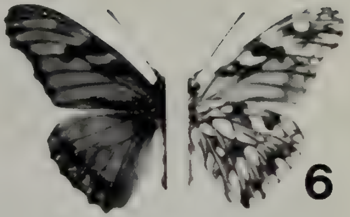
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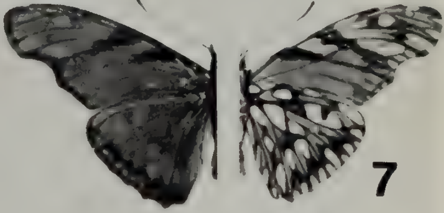
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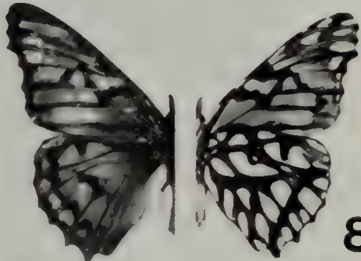
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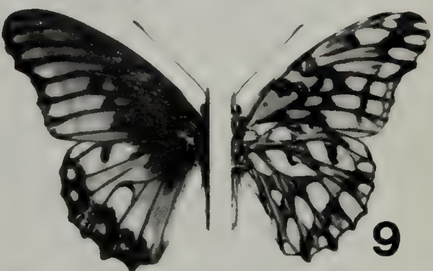
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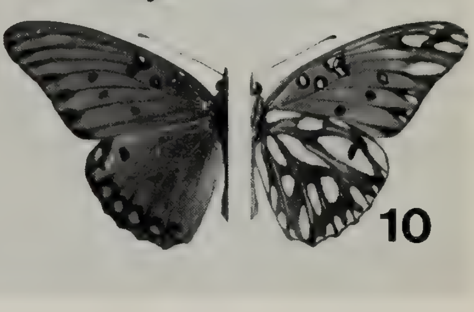
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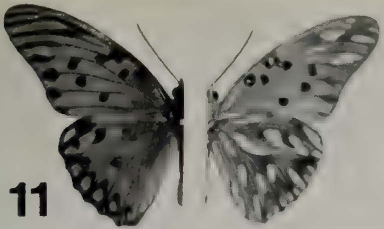
PLATE 2

Upper- and underside

Fig. 11. *Dione vanillae maculosa* Stichel, syntype ♂ (Brasilia, Espirito Santo).
Fig. 12. *Agraulis lucina* Felder & Felder, syntype ♂ (Rio Negro).
Fig. 13. *Dione vanillae catella* Stichel, holotype ♂ (Süd-Peru, Pozuzo).
Fig. 14. *Colaenis euchroia* Doubleday, lectotype ♂ (Columbia).
Fig. 15. *C. euchroia caucana* Riley, lectotype ♂ (Frontino, Antioquia).
Fig. 16. *C. euchroia mellosa* Stichel, lectotype ♂ (Ecuador).
Fig. 17. *C. euchroia straminea* Riley, holotype ♂ (Balzapamba, Ecuador).
Fig. 18. *C. tithraustes* Salvin, lectotype ♂ (Rio Topo, Ecuador).
Fig. 19. *C. telesiphe* Hewitson, lectotype ♂ (Ecuador).
Fig. 20. *C. tithraustes* var. *diaphana* Niepelt, holotype ♂ (S. O. Peru).
Fig. 21. *C. julia carteri* Riley, syntype ♂ (Nassau, Bahamas).
Fig. 22. *C. julia lucia* Riley, syntype ♂ (Santa Lucia).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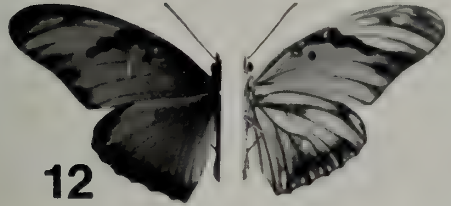
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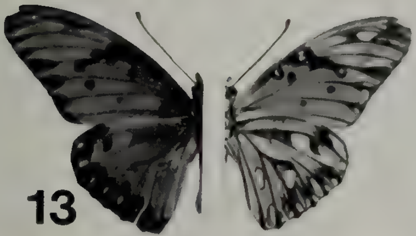
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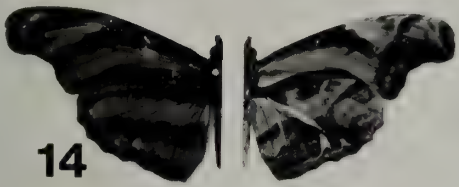
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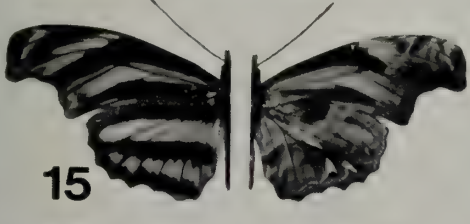
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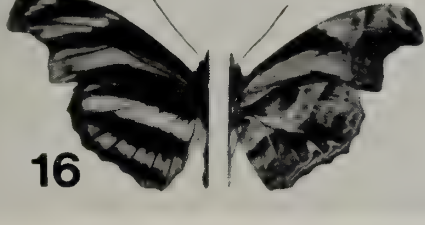
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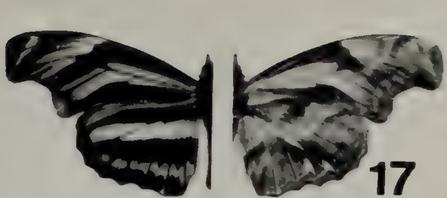
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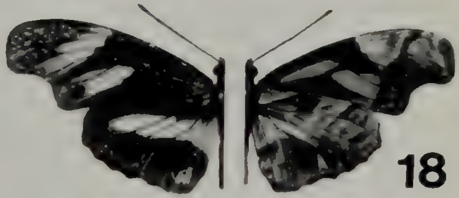
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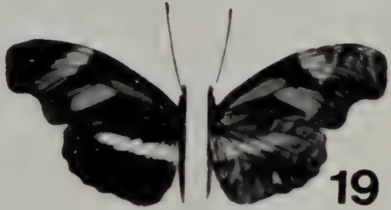
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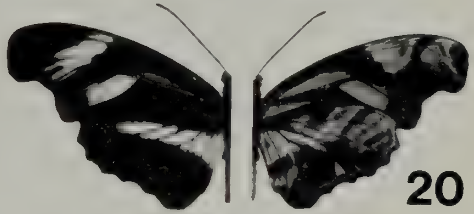
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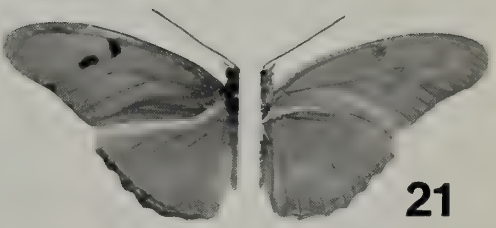
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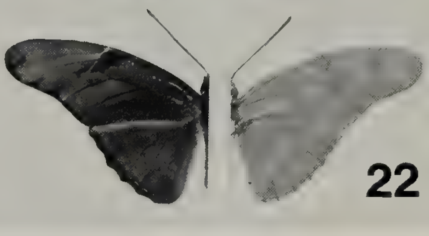
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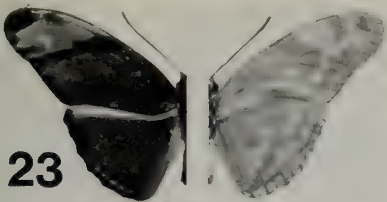
PLATE 3

Upper- and underside

FIG. 23. *Colaenis julia framptoni* Riley, syntype ♂ (W. Indies, St. Vincent).
FIG. 24. *C. julia warneri* Hall, syntype ♀ (B.W.I., St. Kitts).
FIG. 25. *C. iulia titio* Stichel, syntype ♂ (Sta. Cruz, Süd Bolivia).
FIG. 26. *Eueides edias* Hewitson, syntype ♂ (New Granada).
FIG. 27. *E. edias umbratilis* Röber, syntype ♂ (Sierra Nevada de Sta. Marta, Columbien).
FIG. 28. *E. vulgiformis* Butler & Druce, syntype ♀ (Costa Rica).
FIG. 29. *E. eurysaces* Hewitson, syntype ♀ (Quito).
FIG. 30. *E. procula* Doubleday, syntype ♂ (Venezuela).
FIG. 31. *E. lampeto copiosus* Stichel, syntype ♀ (British Guiana, Potaro Rd.).
FIG. 32. *E. lampeto* Bates, holotype ♀ (S. Paulo).
FIG. 33. *E. lampeto* ab. *fuliginosa* Stichel, syntype ♂ (Ecuador, Santa Jnez).
FIG. 34. *E. acacetes* Hewitson, syntype ♂ (Ecuador).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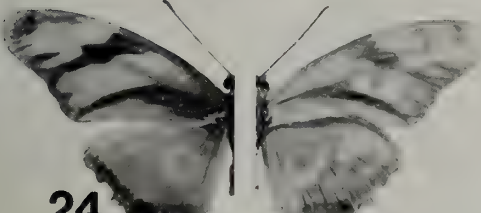
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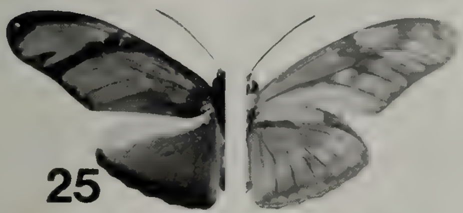
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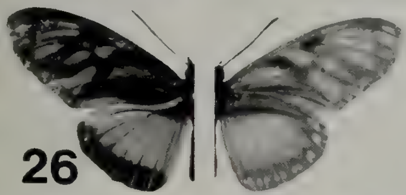
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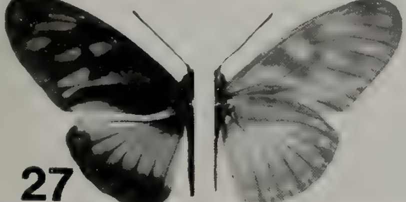
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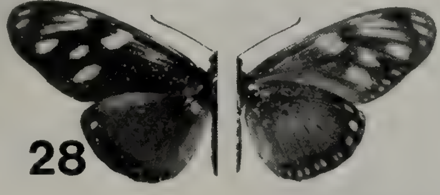
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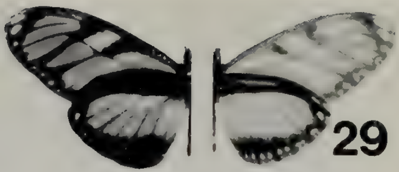
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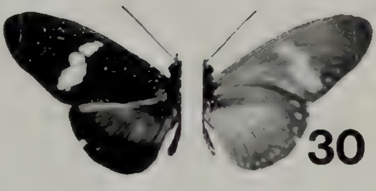
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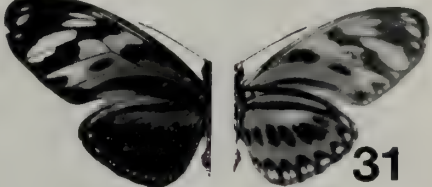
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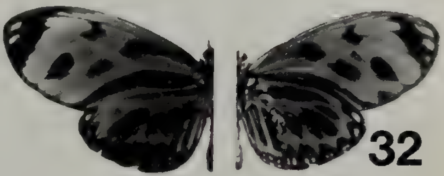
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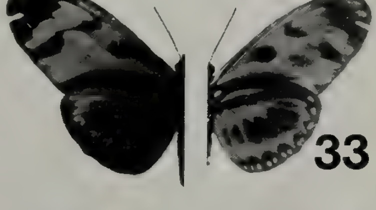
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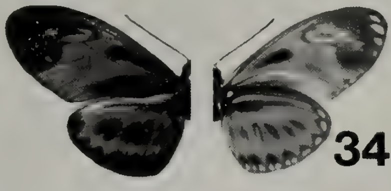
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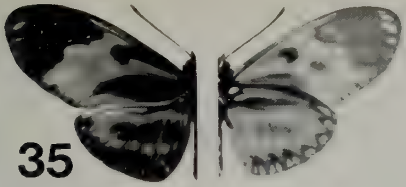
PLATE 4

Upper- and underside

Fig. 35. *Eueides lampeto* ab. *amoena* Stichel, syntype ♂ (Ecuador, Santa Jnéz).
Fig. 36. *E. lampeto acacetes* ab. *carbo* Stichel, syntype ♀ (Ecuador, Santa Jnéz).
Fig. 37. *E. lampeto fuliginosus* form *pallida* Riffarth, holotype ♀ (Ecuador, Ob. Pastaza).
Fig. 38. *E. emsleyi* Brown, holotype ♂ (Colombia, Valdevia).
Fig. 39. *E. vibilia vialis* Stichel, syntype ♂ (Columbia).
Fig. 40. *E. vibilia vicinalis* Stichel, syntype ♀ (Ecuador, Palmar).
Fig. 41. *E. vibilia vibilia* form *pallens* Stichel, holotype ♀ (Brazil, Espirito-Santo).
Fig. 42. *E. unifasciatus* Butler, syntype ♂ (Ega, Amazons).
Fig. 43. *E. thyana* Felder & Felder, syntype ♀ (Brazil).
Fig. 44. *E. lineata* Salvin & Godman, syntype ♂ (Polochic Valley).
Fig. 45. *E. eanes* Hewitson, syntype ♂ (Amazons).
Fig. 46. *E. eanes ab. riffarthi* Stichel, syntype ♂ (Süd-Peru, Chanchamayo).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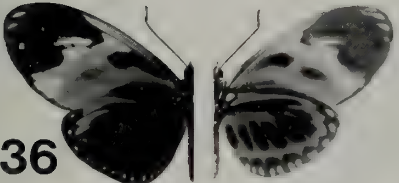
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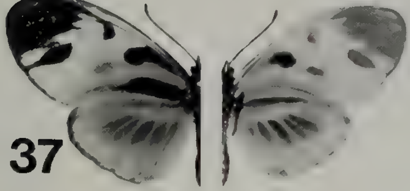
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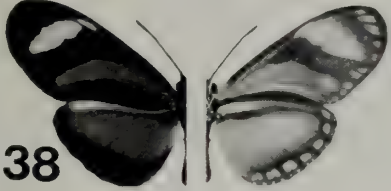
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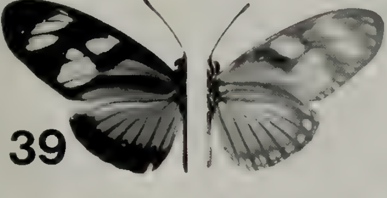
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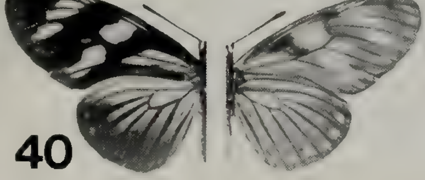
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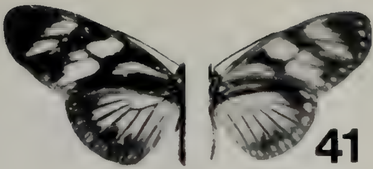
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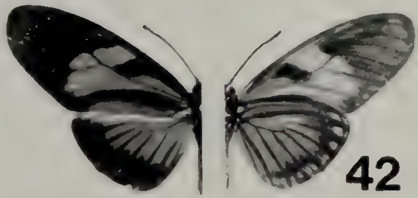
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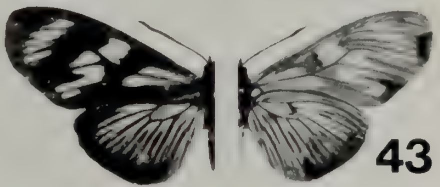
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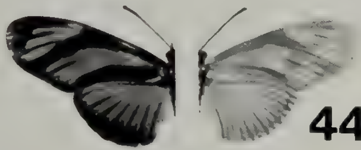
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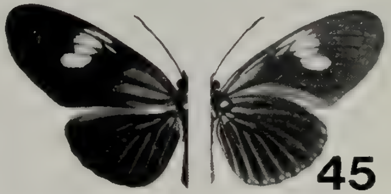
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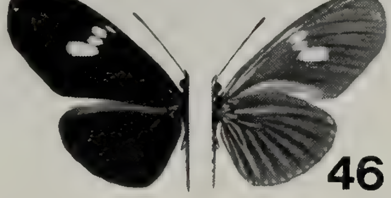
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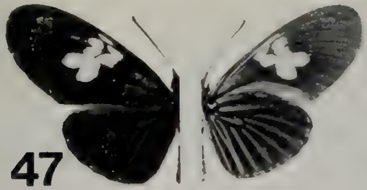
PLATE 5

Upper- and underside

FIG. 47. *Eueides eanes* ab. *eanides* Stichel, syntype ♂ (Bolivien).
FIG. 48. *E. cleobaea zorcaon* ab. *adusta* Stichel, syntype ♀ (Mexico, Vera Cruz).
FIG. 49. *E. pellucida* Srnka, holotype ♀.
FIG. 50. *E. isabella arquata* Stichel, syntype ♂ (S. America, Caucathal).
FIG. 51. *Heliconius isabella huebneri* ab. *spoliata* Stichel, holotype ♀ (S. America, Caucathal).
FIG. 52. *Eueides isabella seitzi* Stichel, syntype ♂ (Santa Jnéz, Ecuad.).
FIG. 53. *E. isabella* ab. *vegetissima* Stichel, holotype ♀ (Santa Jnéz, Ecuad.).
FIG. 54. *E. hippolinus* Butler, syntype ♀ (E. Peru).
FIG. 55. *E. isabella hippolina* ab. *brunnea* Stichel, syntype ♀ (Tarapota, Peru).
FIG. 56. *E. isabella dissoluta* Stichel, syntype ♂ (Tarapota, Peru).
FIG. 57. *E. dynastes* Felder & Felder, syntype ♀ (Venezuela).
FIG. 58. *Heliconius thales surdus* Stichel, syntype ♂ (Demerara).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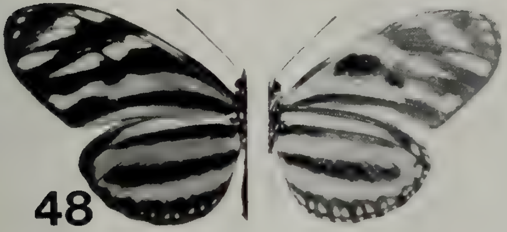
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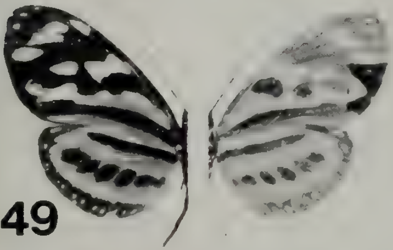
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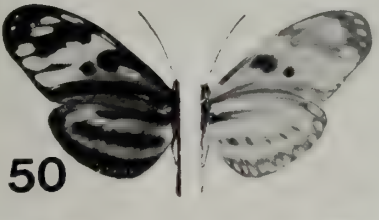
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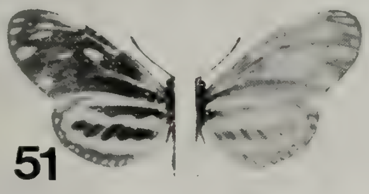
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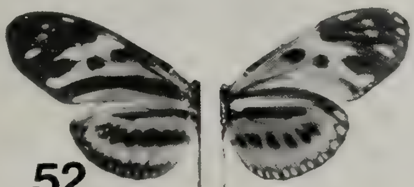
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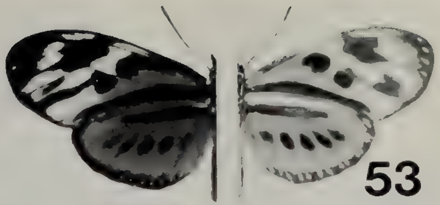
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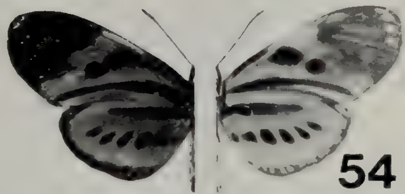
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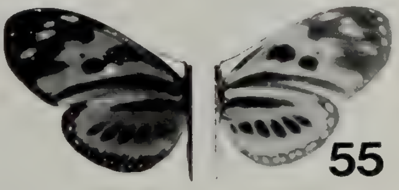
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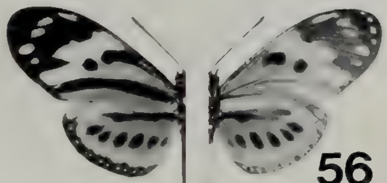
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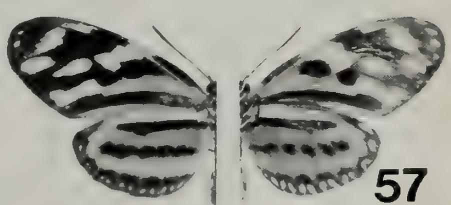
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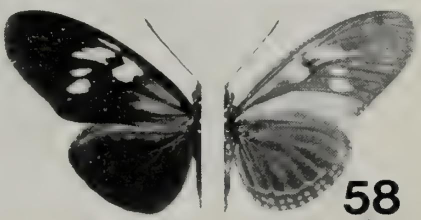
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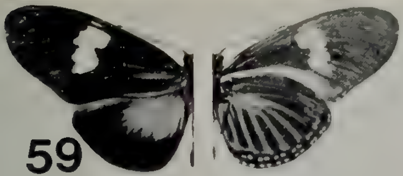
PLATE 6

Upper- and underside

Fig. 59. *Eueides xenophanes* Felder & Felder, syntype ♂ (Bogota).
Fig. 60. *E. thales heraldicus* Stichel, syntype ♀ (Para).
Fig. 61. *E. crystalina* Hall, syntype ♂ (Crystalina, W. Colombia).
Fig. 62. *E. tales calathus* Stichel, syntype ♂ (Ob. Pastaza, Ecuad.).
Fig. 63. *E. aliphera gracilis* Stichel, syntype ♂ (Costa Rica, San Carlos).
Fig. 64. *E. leucomma* Bates, syntype ♂ (Lion Hill, Panama).
Fig. 65. *E. heliconioides* Felder & Felder, syntype ♂ (Ecuador).
Fig. 66. *Heliconia emmelina* Oberthür, holotype ♂ (Guyane anglaise).
Fig. 67. *Heliconius bartletti* Druce, syntype ♂ (Santa Cruz, Peru).
Fig. 68. *H. aoede cupidineus* Stichel, syntype ♂ (Tarapoto, Peru).
Fig. 69. *H. aoede eurycleia* Brown, paratype ♂ (Cuiabá-Pôrto Velho).
Fig. 70. *Heliconia thetis* Boisduval, holotype ♀ (Nicaragua).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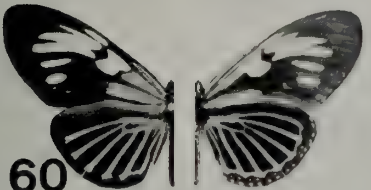
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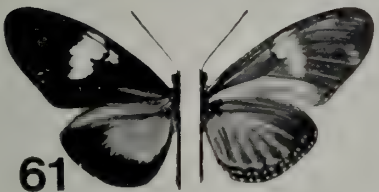
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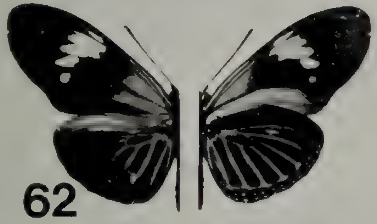
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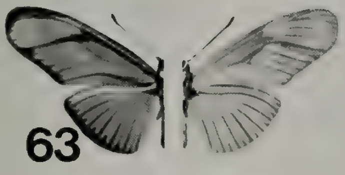
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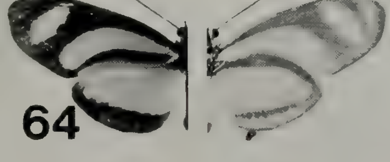
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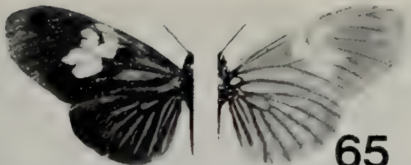
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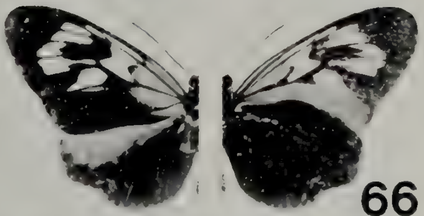
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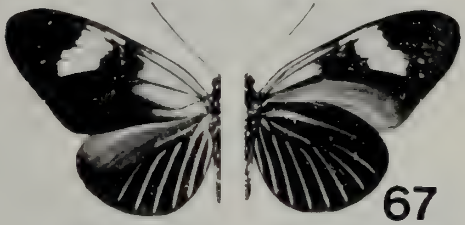
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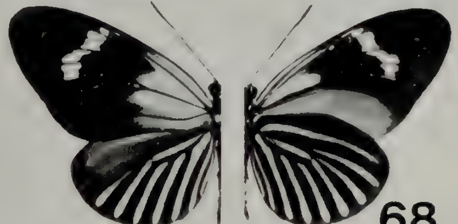
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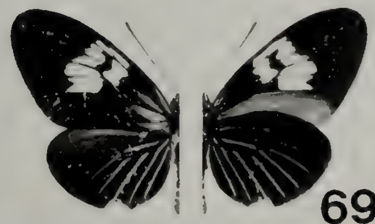
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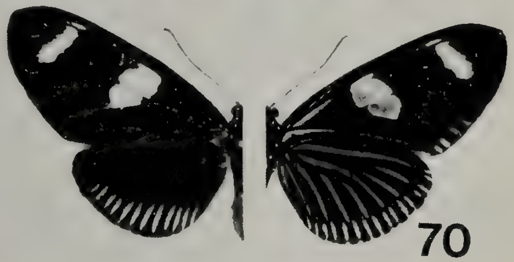
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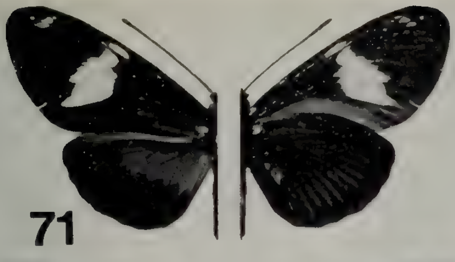
PLATE 7

Upper- and underside

Fig. 71. *Heliconia hierax* Hewitson, syntype ♂ (Ecuador).
Fig. 72. *H. hecuba* Hewitson, syntype ♂ (N. Granada).
Fig. 73. *Heliconius tolima* Fassl, syntype ♂ (Canon del Tolima, Columb.).
Fig. 74. *H. cassandra* Felder & Felder, syntype ♂ (Bogota).
Fig. 75. *H. hecuba intermedius* Riffarth, holotype ♂ (Columbien).
Fig. 76. *H. crispus* var. *crespinus* Krüger, syntype ♀ (Cauca V.).
Fig. 77. *Heliconia choarina* Hewitson, syntype ♀ (Ecuador).
Fig. 78. *Heliconius hecuba choarinus* form *flava* Neustetter, holotype ♀ (Baiza, Ecuad.).
Fig. 79. *H. xanthocles* Bates, syntype ♂ (Demerara, Brit. Guiana).
Fig. 80. *Heliconia caternaulti* Oberthür, syntype ♂ (Cayenne).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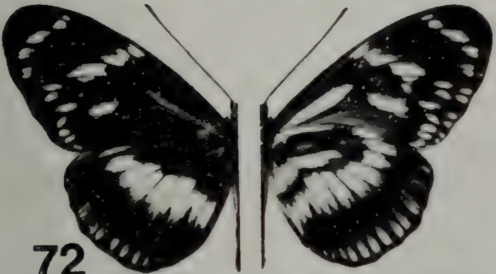
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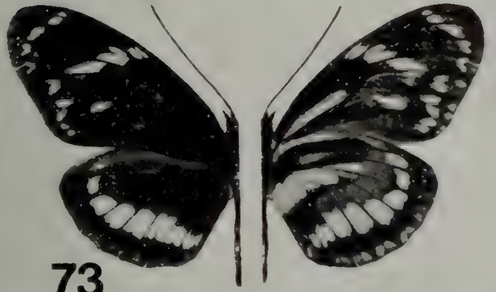
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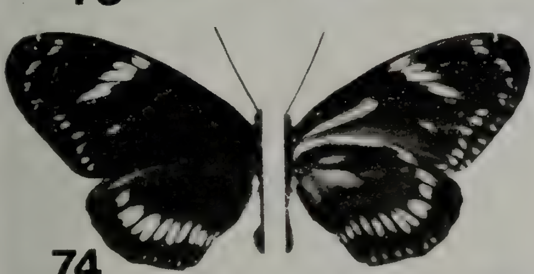
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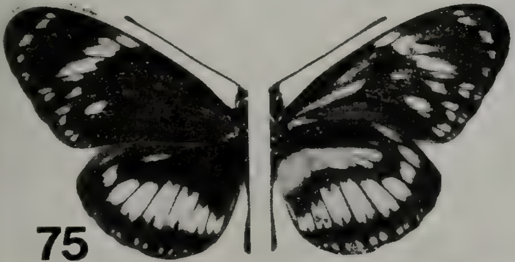
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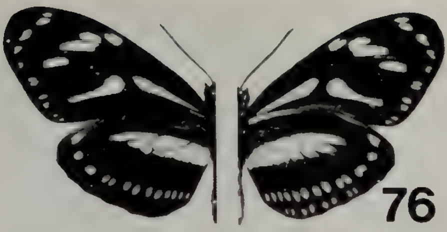
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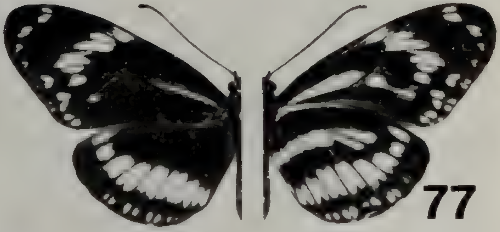
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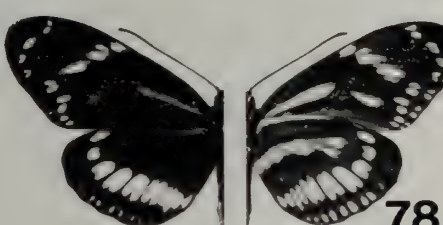
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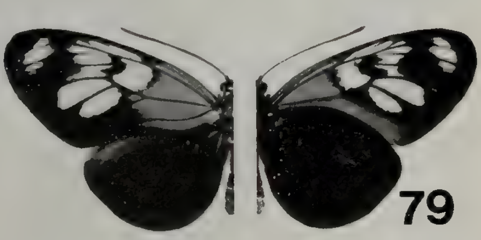
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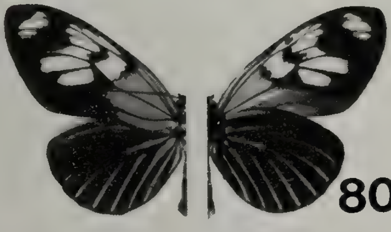
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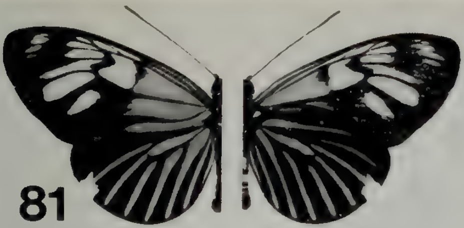
PLATE 8

Upper- and underside

Fig. 81. *Heliconius paraplesius* Bates, syntype ♂ (Maranham, N. Brazil).
Fig. 82. *Heliconia cethosia* form *completa* Oberthür, syntype ♂ (Région de Bogota).
Fig. 83. *Heliconius melete* Felder & Felder, syntype ♂ (Nova Granada).
Fig. 84. *H. mimulinus* Butler, syntype ♂ (Bogota).
Fig. 85. *H. clytia* var. *elsa* Riffarth, syntype ♂ (Surinam).
Fig. 86. *H. wallacei araguaia* Brown, holotype ♂ (R. Araguaya, Prov. Goyaz).
Fig. 87. *H. clytia* ab. *parvimaculata* Riffarth, syntype ♀ (Obidos, Amazonen).
Fig. 88. *H. wallacei brevimaculata* ab. *halli* Kaye, holotype ♀ (Serpa, Lower Amazon).
Fig. 89. *H. lindigii* Felder & Felder, syntype ♂ (Bogota).
Fig. 90. *H. burneyi serpensis* Kaye, paratype ♂ (Serpa, Lower Amazon).
Fig. 91. *H. egeria* ab. *clearista* Oberthür, syntype ♂ (Guyane française).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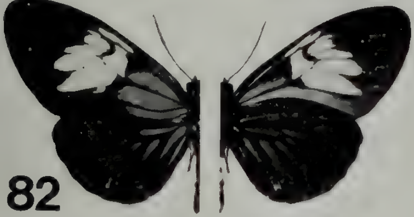
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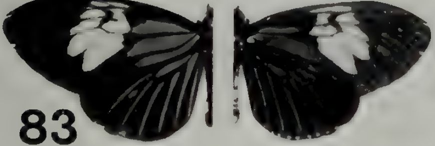
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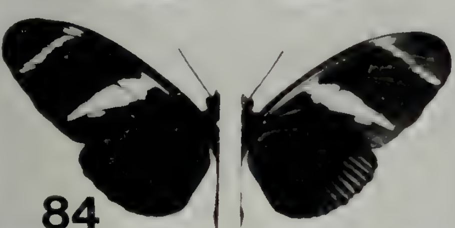
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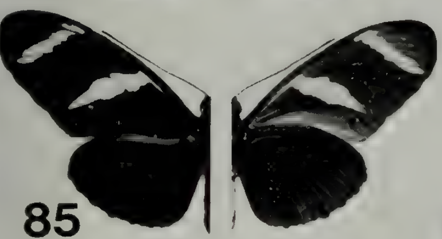
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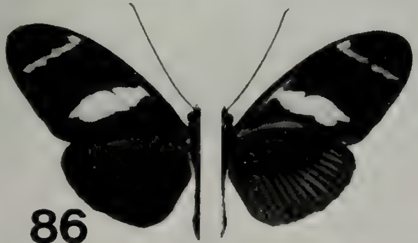
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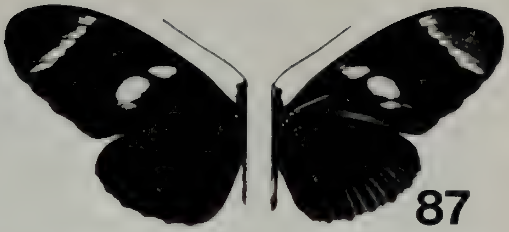
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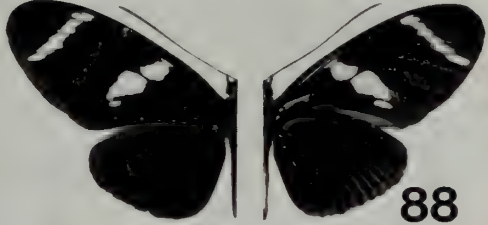
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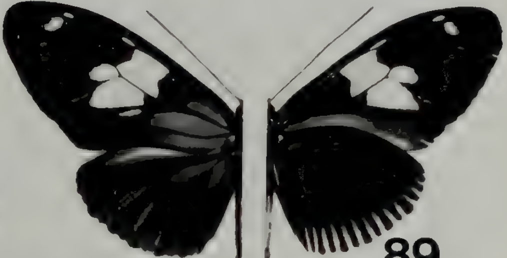
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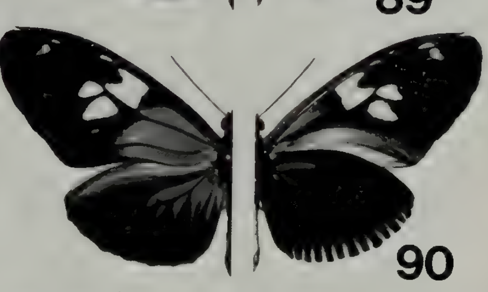
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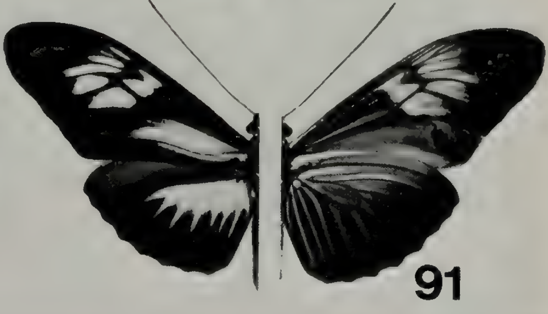
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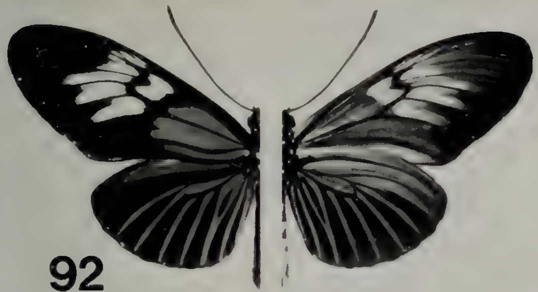
PLATE 9

Upper- and underside

FIG. 92. *Heliconius astraea rondonia* Brown, paratype ♂ (Matto-Grosso, Brazil).
FIG. 93. *H. erato luminosus* Riffarth, syntype ♂ (Columb.).
FIG. 94. *H. erato* ab. *tecta* Riffarth, syntype ♂ (Columbien).
FIG. 95. *H. doris viridis* form *viridana* Stichel, holotype ♂ (Colombia, Magdalena).
FIG. 96. *H. erato aristomache* Riffarth, syntype ♂ (Balzapamba).
FIG. 97. *H. doris doris* ab. *gibbsi* Kaye, holotype ♂ (Friendship, B. Guiana).
FIG. 98. *H. doris caeruleatus* Stichel, syntype ♂ (Süd Peru, Pozuzo).
FIG. 99. *H. nattereri* Felder & Felder, syntype ♂ (Bahia, Beske).
FIG. 100. *H. fruhstorferi* Riffarth, holotype ♀ (Espirito-Santo, Brazil).
FIG. 101. *H. messene* Felder & Felder, syntype ♂ (Bogota).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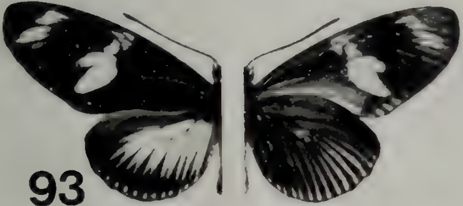
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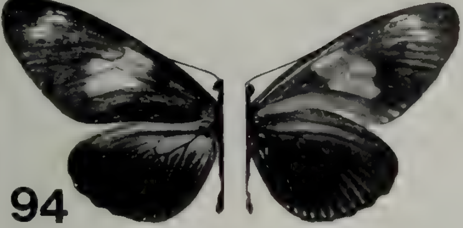
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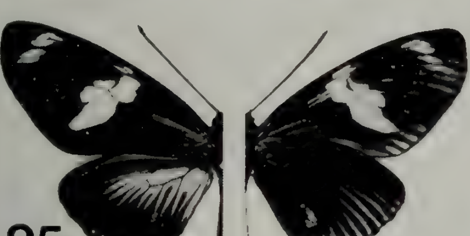
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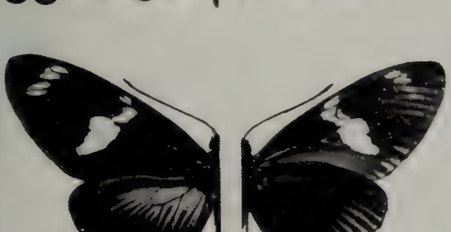
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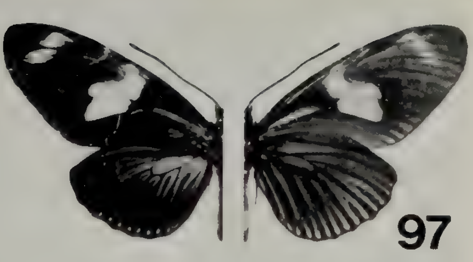
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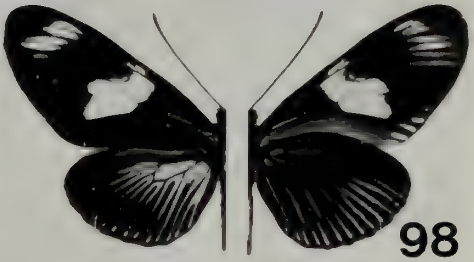
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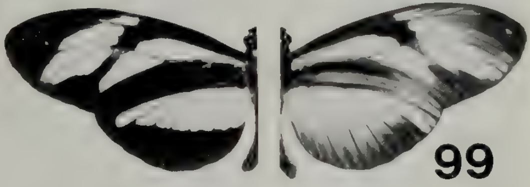
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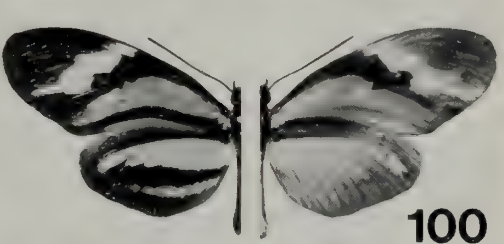
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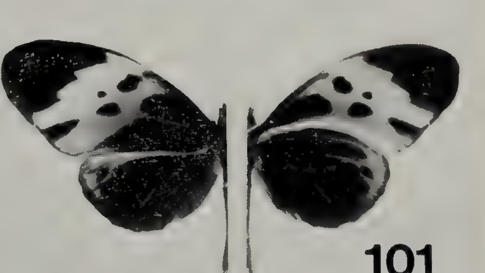
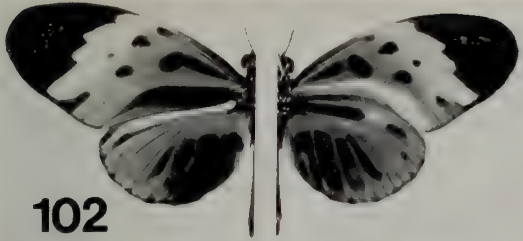

101

PLATE 10

Upper- and underside

Fig. 102. *Heliconius euphone* Felder & Felder, paralectotype ♂ (Bogota).
Fig. 103. *H. aristiona lepidus* Riffarth, syntype ♀ (Sara-yacu, Ecuad.).
Fig. 104. *H. aristiona lepidus* form *gracilis* Riffarth, syntype ♂ (La Merced, Peru).
Fig. 105. *H. aristiona tarapotensis* Riffarth, syntype ♂ (Tarapota, Peru).
Fig. 106. *Heliconia aristiona* Hewitson, syntype ♂ (Colombia).
Fig. 107. *Heliconius aristiona pratti* Joicey & Kaye, syntype ♀ (Charape, N. Peru).
Fig. 108. *H. bicoloratus* Butler, syntype ♂ (Nauta, Amazons).
Fig. 109. *H. numatus praelautus* Stichel, holotype ♀ (Ucayali).
Fig. 110. *Heliconia arcuella* Druce, syntype ♂ (Nauta, Ecuador).
Fig. 111. *Heliconius aurora* Bates, syntype ♀ (S. Paulo, Amazons).
Fig. 112. *H. nubifer* Butler, holotype ♀ (Fonteboa, Amazons).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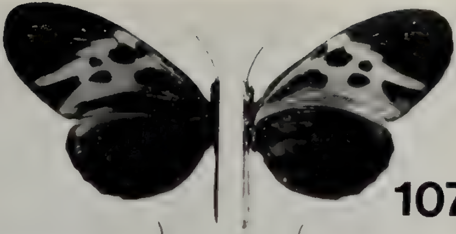
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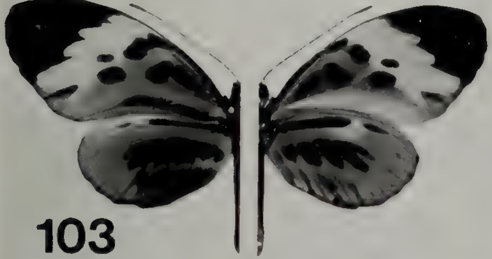
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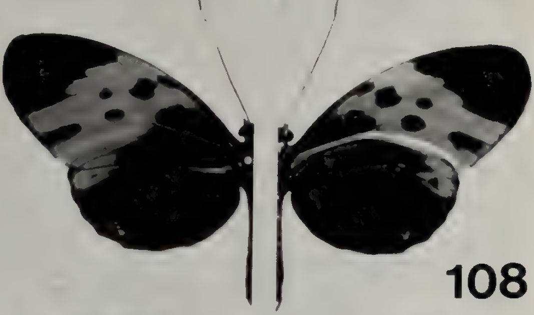
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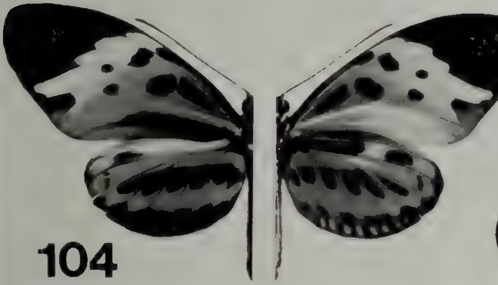
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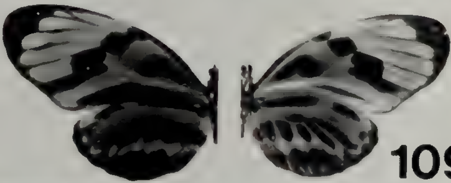
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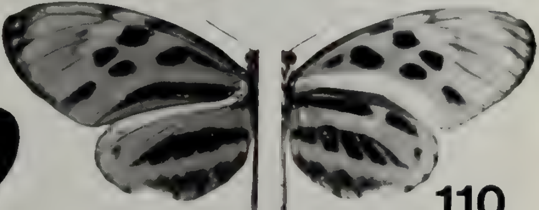
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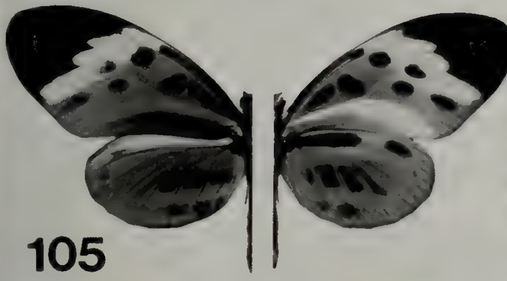
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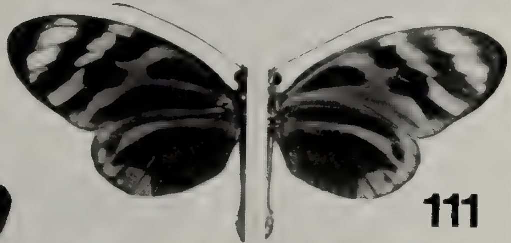
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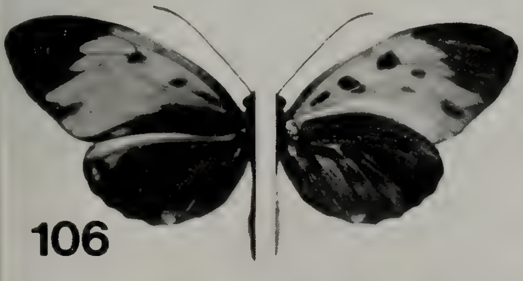
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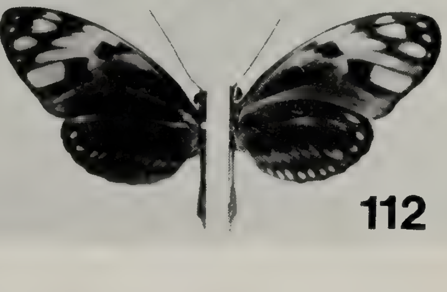
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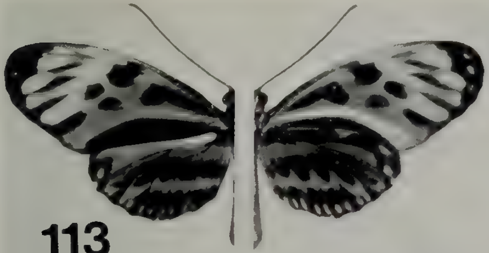
PLATE 11

Upper- and underside

FIG. 113. *Heliconius numata* var. *isabellinus* Bates, syntype ♂ (S. Paulo, U. Amazons).
FIG. 114. *H. ignotus* Joicey & Kaye, syntype ♂ (Charape, N. Peru).
FIG. 115. *H. numata talboti* Joicey & Kaye, syntype ♂ (Rentema Falls, Upper Maranon).
FIG. 116. *H. novatus subnubilis* Stichel, syntype ♀ (Juanjuy, Peru).
FIG. 117. *H. silvana mirificus* Stichel, holotype ♀ (Ucayali).
FIG. 118. *H. novatus artemis* Riffarth, holotype ♂ (Titicaca, S. Bolivia).
FIG. 119. *H. novatus obscurior* Stichel, syntype ♂ (Bolivia, Titicaca).
FIG. 120. *H. peeblesi* Joicey & Talbot, syntype ♂ (Merida Dist., Venezuela).
FIG. 121. *H. numata superioris* ab. *translata* Joicey & Kaye, syntype ♀ (Manaos, Lower Amazon).
FIG. 122. *Heliconius numata* ab. or var. *guiensis* Riffarth, holotype ♀ (British Guayana).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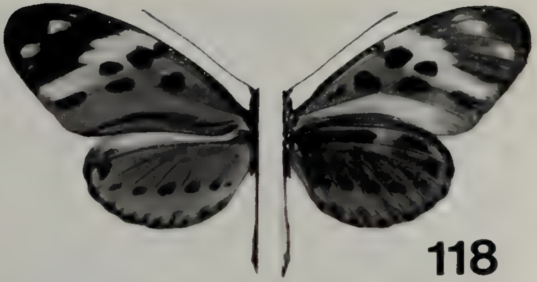
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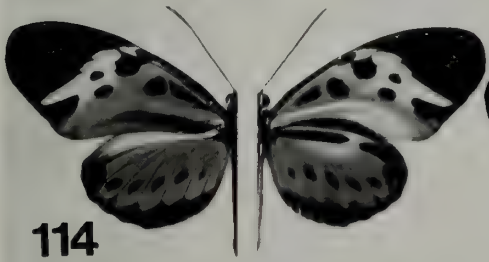
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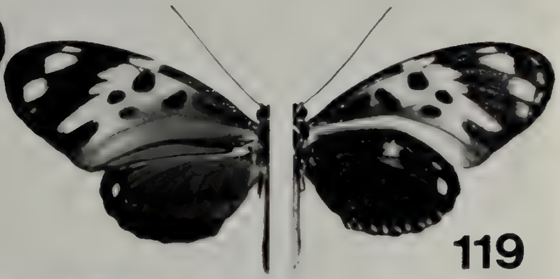
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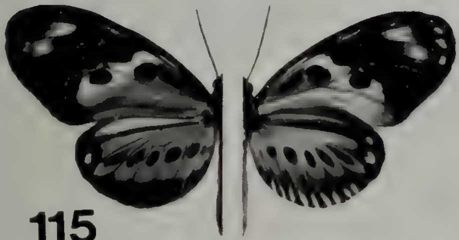
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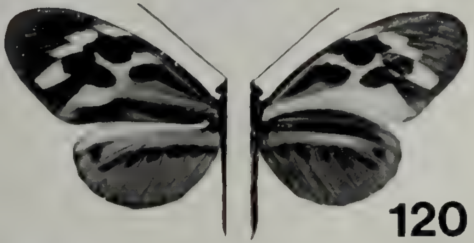
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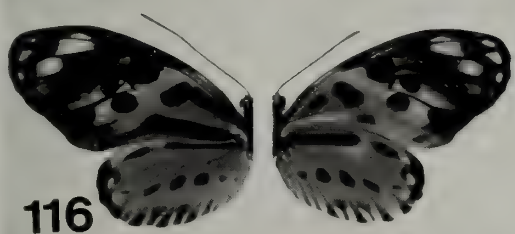
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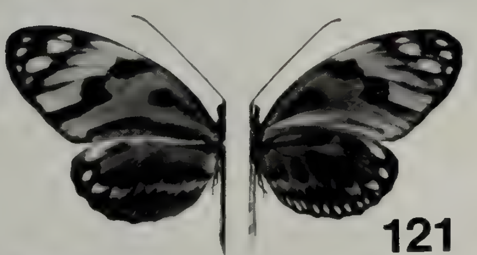
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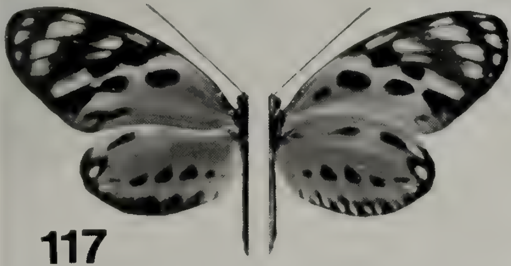
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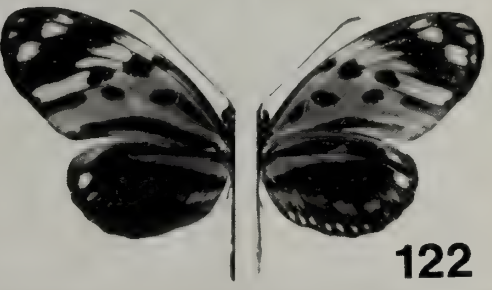
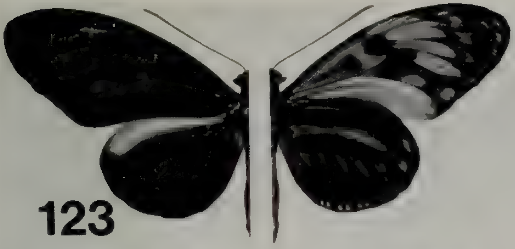

122

PLATE 12

Upper- and underside

FIG. 123. *Heliconius seraphini* Talbot, holotype ♂ (Guyane, St. Laurent).
FIG. 124. *H. numata* form *melanopors* Joicey & Kaye, syntype ♀ (Guyane Francse, St. Jean du Maroni).
FIG. 125. *H. numatus sincerus* Riffarth, syntype ♂ (Amazon).
FIG. 126. *H. superioris* Butler, syntype ♂ (Villa Nova, Amazons).
FIG. 127. *H. numata silvaniformis* Joicey & Kaye, syntype ♂ (Para, Lower Amazon).
FIG. 128. *H. diffusus* Butler, syntype ♂ (Para).
FIG. 129. *Heliconia telchinia* Doubleday, syntype ♀ (Honduras).
FIG. 130. *Heliconius aulicus zobrysi* Fruhstorfer, syntype ♂ (Brasilien, M. Grosso).
FIG. 131. *H. clarescens* Butler, holotype ♀ (Bugaba, Panama).



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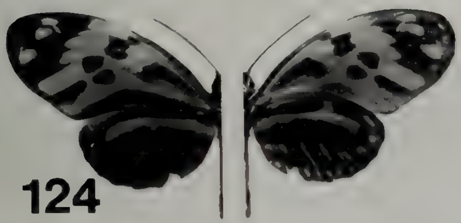

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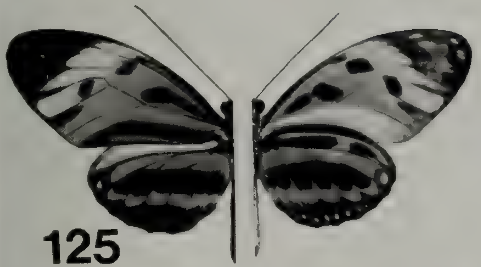

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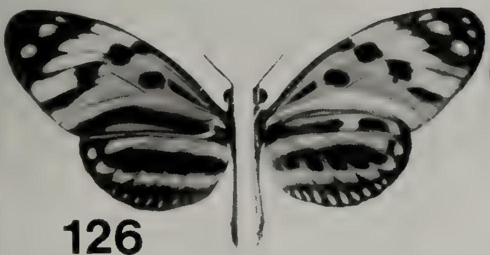

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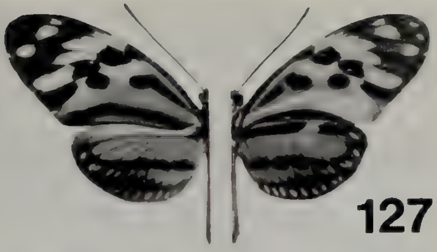

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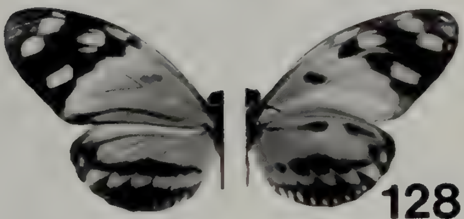

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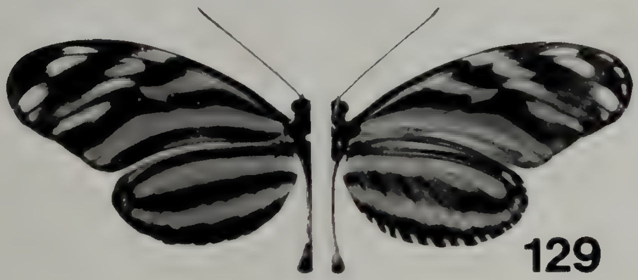

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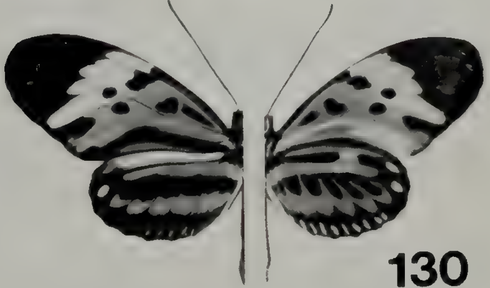

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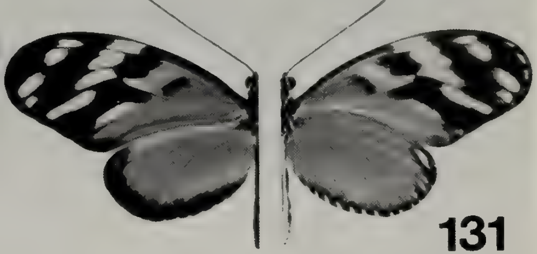

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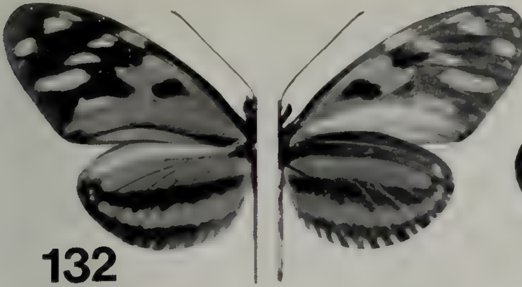
PLATE 13

Upper- and underside

FIG. 132. *Heliconius ismenius occidentalis* Neustetter, syntype ♂ (Cantinella, Putamayo).
FIG. 133. *H. ismenius ismenius* form *immoderata* Stichel, syntype ♂ (Columb., Muzo).
FIG. 134. *H. ismenius* var. or ab. *hermanni* Riffarth, holotype ♀ (Columb.).
FIG. 135. *H. fasciatus* Godman & Salvin, syntype ♂ (Lion Hill, Panama).
FIG. 136. *H. pardalinus butleri* Brown, holotype ♂ (Pérou, Cavallo-Cocho).
FIG. 137. *H. eucoma* var. *pardalinus* Bates, syntype ♂ (S. Paulo, U. Amazons).
FIG. 138. *H. anderida* form *styx* Niepelt, syntype ♂.
FIG. 139. *Heliconia fornarina* Hewitson, syntype ♂ (S. America).
FIG. 140. *H. zuleika* Hewitson, syntype ♀ (Nicaragua).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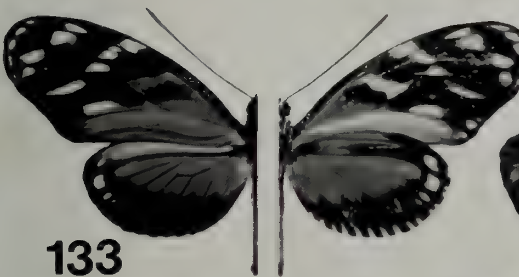
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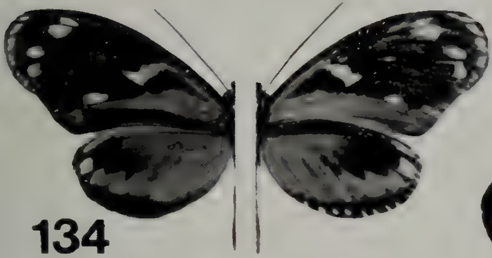
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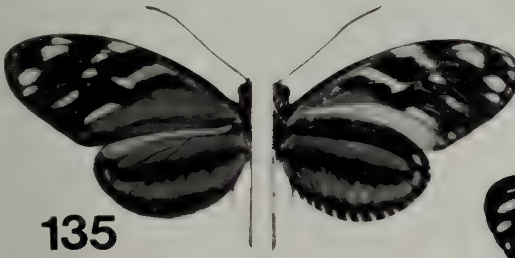
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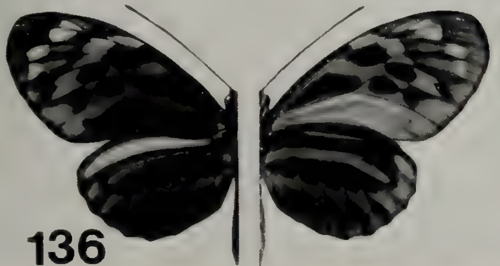
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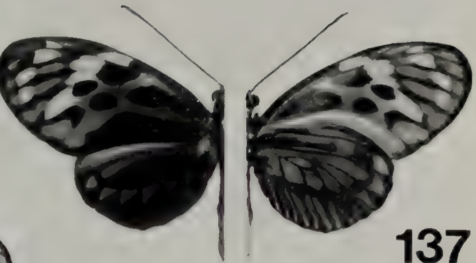
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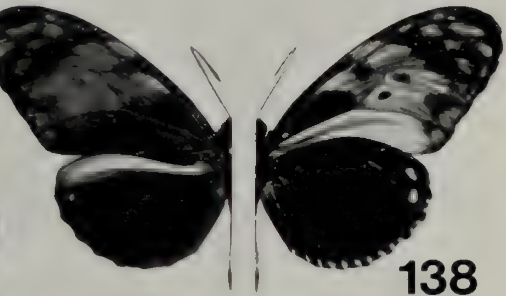
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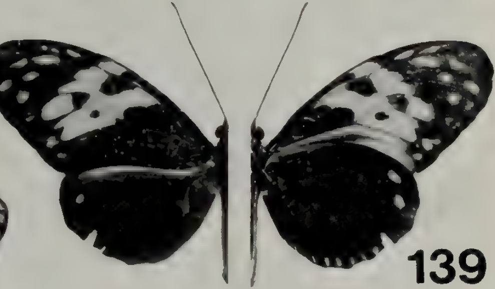
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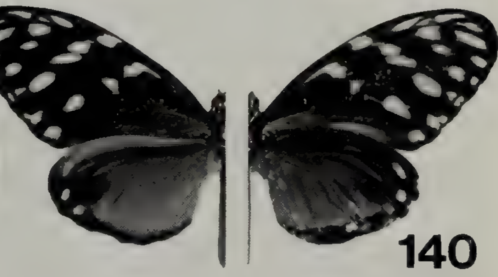
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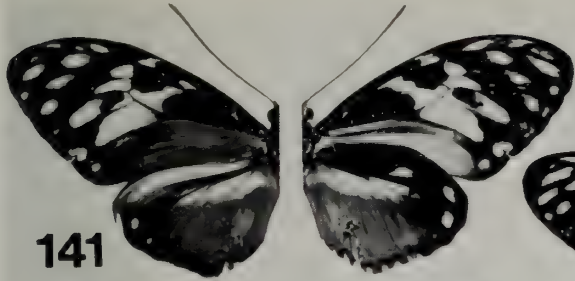
PLATE 14

Upper- and underside

Fig. 141. *Heliconius chrysantis* Godman & Salvin, holotype ♂ (Nicaragua).
Fig. 142. *H. zuleika* ab. *albipunctata* Riffarth, syntype ♂ (Chiriqui).
Fig. 143. *H. melicerta* Bates, syntype ♂ (Lion Hill, Panama).
Fig. 144. *H. anderida melicerta* form *zygia* Riffarth, syntype ♂ (Columb.).
Fig. 145. *H. metaphorus* var. *semiphorus* Staudinger, syntype ♂ (Rio Dagua).
Fig. 146. *H. jucundus* Bates, syntype ♂ (Lion Hill, Panama).
Fig. 147. *H. xanthicus* Bates, syntype ♀ (Lion Hill, Panama).
Fig. 148. *H. albucilla* Bates, syntype ♂ (Lion Hill, Panama).
Fig. 149. *H. eucherius* Weymer, holotype ♂ (Bogota, Columbien).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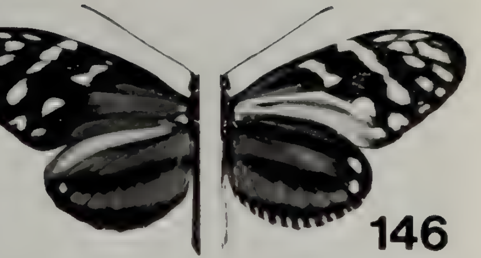
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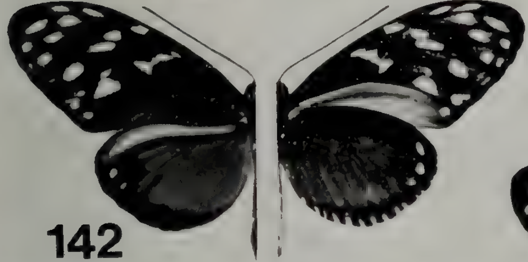
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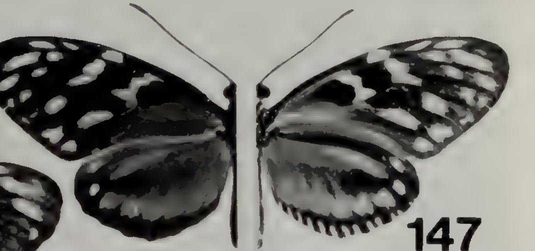
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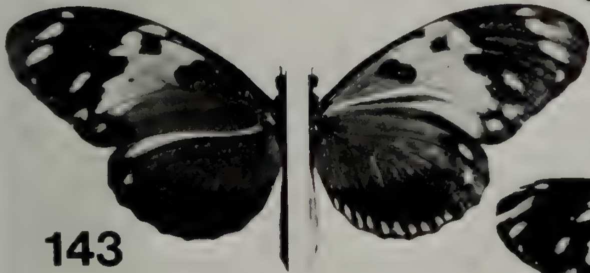
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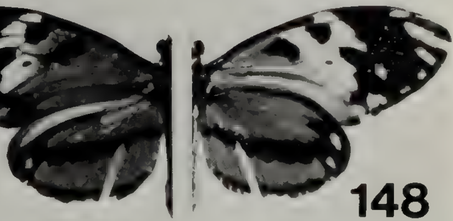
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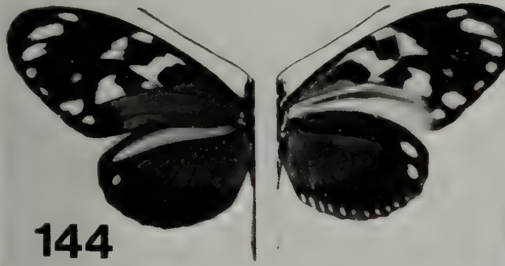
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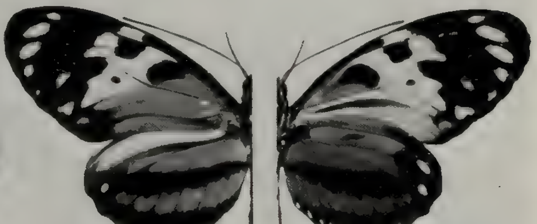
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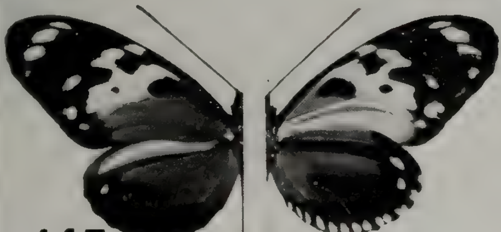
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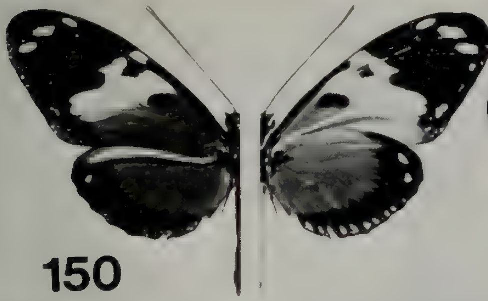
PLATE 15

Upper- and underside

FIG. 150. *Heliconius hecale australis* Brown, paratype ♂ (Quevedo, W. Ecuador).
FIG. 151. *Heliconia anderida* Hewitson, syntype ♂ (Caracas).
FIG. 152. *Heliconius ithaca* Felder & Felder, syntype ♂ (Bogota).
FIG. 153. *H. aristiona indecisa* Joicey & Kaye, syntype ♂ (Up. Orinoco).
FIG. 154. *H. vittatus* Butler, syntype ♂ (Bogota).
FIG. 155. *Heliconia quitalena* Hewitson, syntype ♂ (Quito).
FIG. 156. *Heliconius humboldti* Neustetter, syntype ♂ (Rio Itaya by Iquitos).
FIG. 157. *H. humboldti* form *alexander* Neustetter, syntype ♀ (Rio Itaya by Iquitos).
FIG. 158. *H. sisyphus* Salvin, syntype ♂ (Cosnipata Vall., E. Peru).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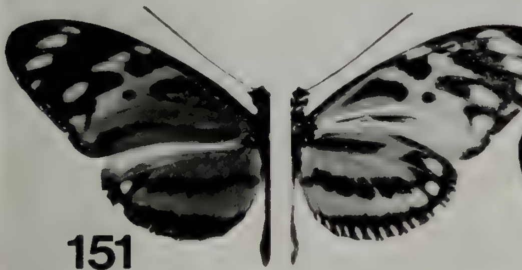
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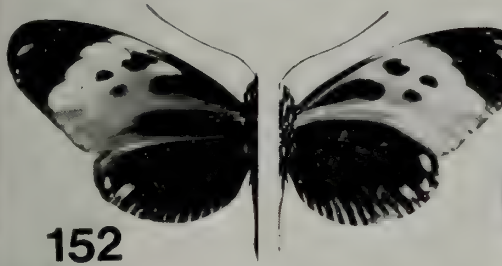
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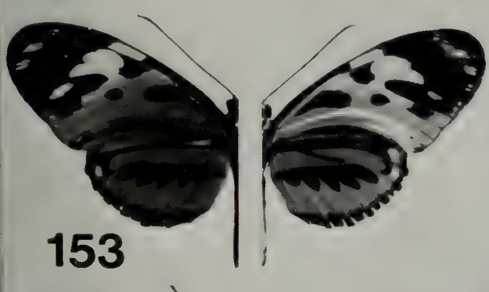
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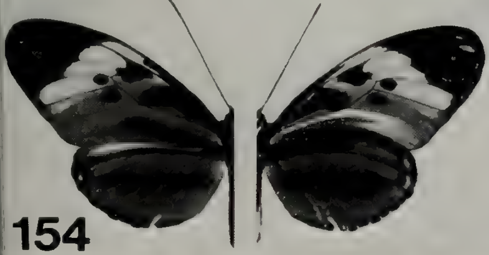
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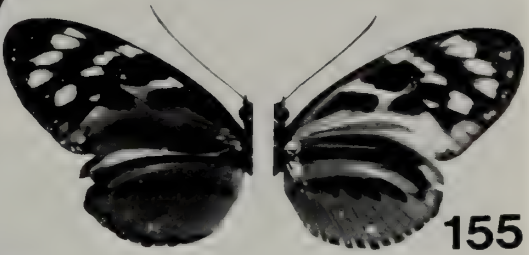
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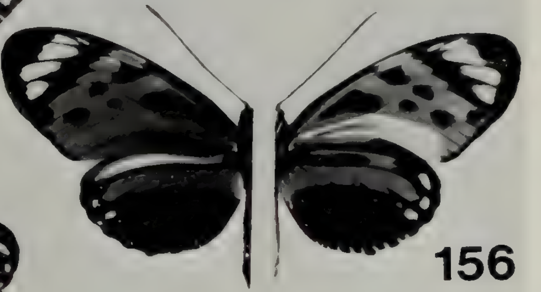
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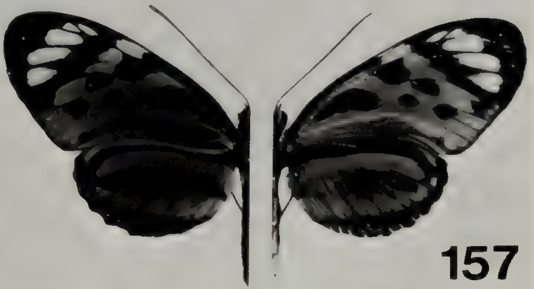
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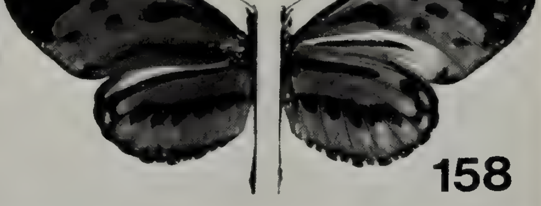
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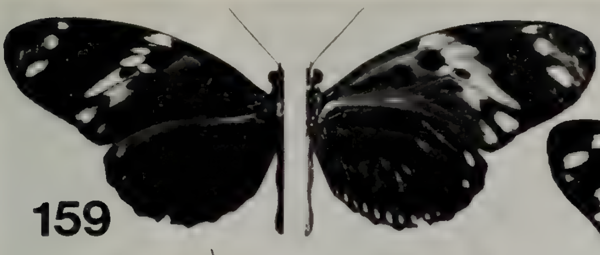
PLATE 16

Upper- and underside

Fig. 159. *Heliconius pasithoe* var. *fulvescens* Lathy, holotype ♀ (Demerara).
Fig. 160. *H. hecale barcanti* Brown, holotype ♂ (Carupano).
Fig. 161. *H. hecale clearei* Hall, syntype ♂ (Mabaruma, British Guiana).
Fig. 162. *H. vetustus* Butler, syntype ♀ (Demerara).
Fig. 163. *H. novatus* Bates, syntype ♀ (Para).
Fig. 164. *H. schulzi* Riffarth, syntype ♀ (Para).
Fig. 165. *H. radiosus* Butler, syntype ♀ (Villa Nova).
Fig. 166. *H. paraensis* var. *latus* Riffarth, syntype ♂ (Itaituba).
Fig. 167. *H. paraensis* Riffarth, syntype ♂ (Para).
Fig. 168. *H. claudia* Godman & Salvin, syntype ♂ (Calobre, Panama).



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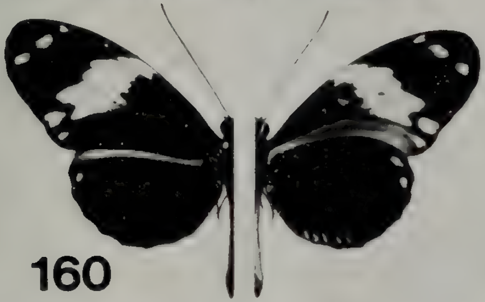

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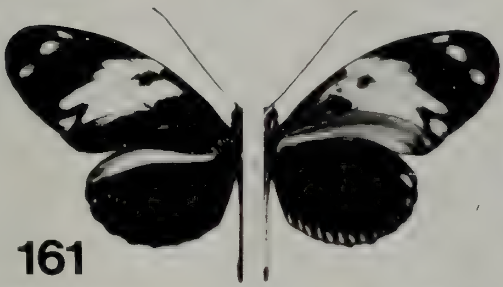

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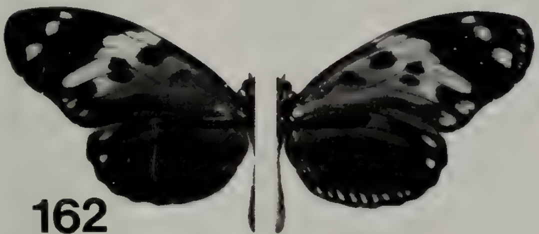

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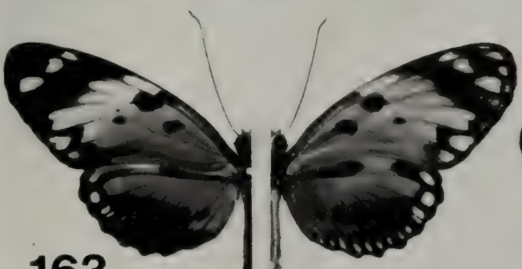

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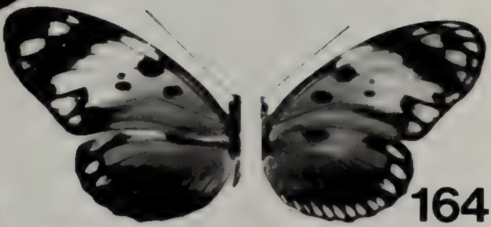

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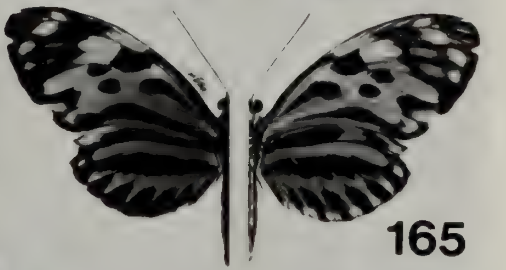

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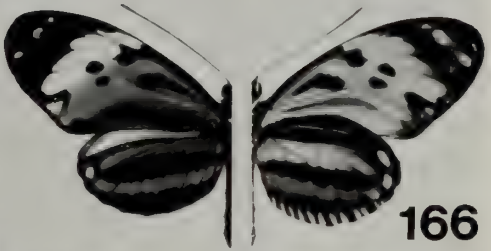

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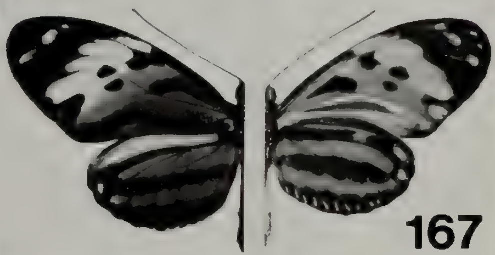

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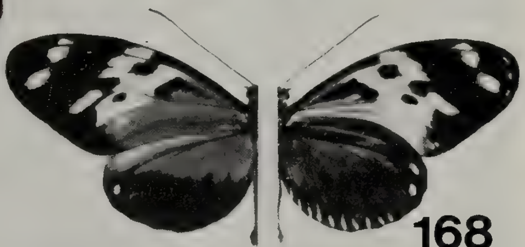

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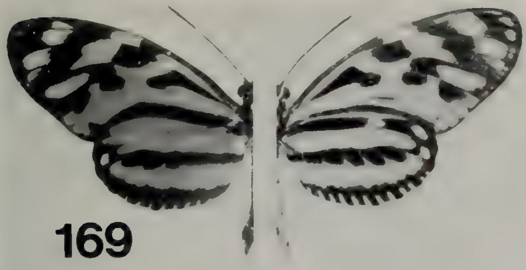
PLATE 17

Upper- and underside

Fig. 169. *Heliconius metalilis* Butler, syntype ♂ (Venezuela).
Fig. 170. *H. cephallenia* Felder & Felder, syntype ♂ (Surinam, Guiana).
Fig. 171. *H. ethilla chapadensis* Brown, paratype ♂ (Matto Grosso).
Fig. 172. *H. aerotome* Felder & Felder, syntype ♂ (Rio Negro).
Fig. 173. *Heliconia hippola* Hewitson, syntype ♂.
Fig. 174. *H. atthis* Doubleday, syntype ♂ (Guayaquil).
Fig. 175. *Heliconius elevatus roraima* Turner, holotype ♂ (Roraima, B. Guiana).
Fig. 176. *Heliconia bari* Oberthür, syntype ♀ (Cayenne).
Fig. 177. *Heliconius elevatus schmassmanni* Joicey & Talbot, holotype ♂ (Cuyaba-Corumba, Matto Grosso).
Fig. 178. *H. elevatus perchlora* Joicey & Kaye, holotype ♂ (Boliv.).



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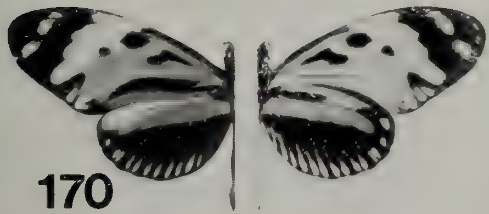

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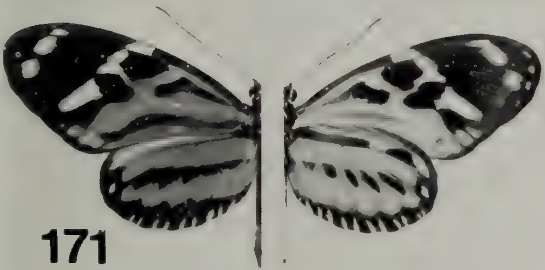

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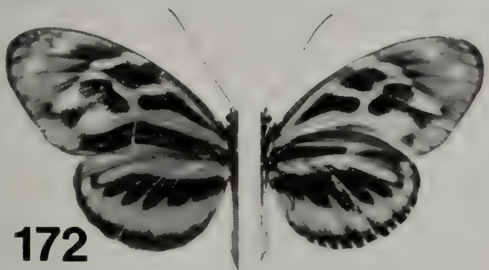

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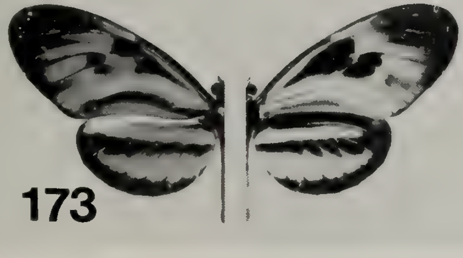

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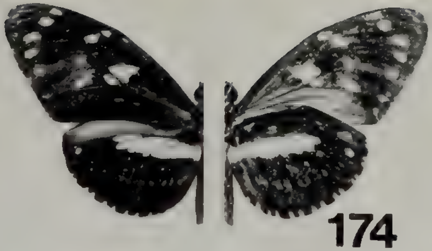

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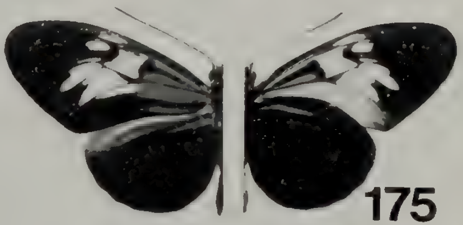

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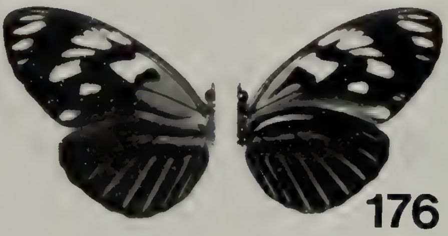

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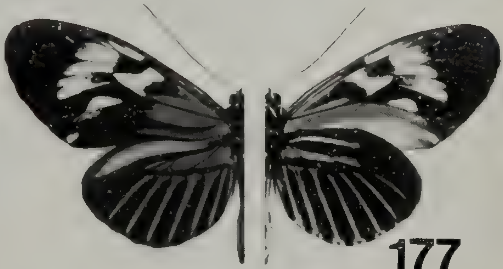

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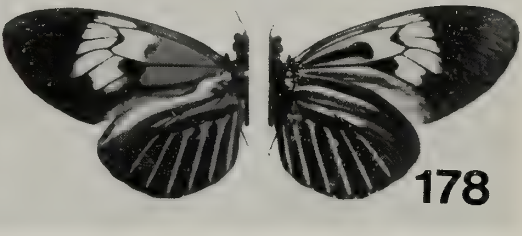

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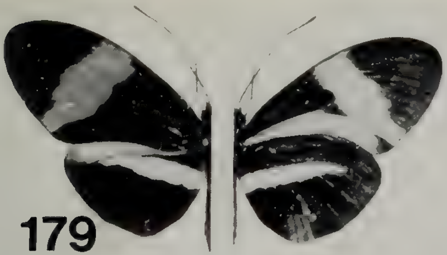
PLATE 18

Upper- and underside

Fig. 179. *Heliconia rosina* Boisduval, syntype ♂ (Mexiq.).
Fig. 180. *H. vulcanus* Butler, syntype ♂.
Fig. 181. *Heliconius vulcanus* ab. *modesta* Riffarth, syntype ♂ (Paramba, Ecuador).
Fig. 182. *H. vulcanus sticheli* Riffarth, syntype ♂ (Paramba, Ecuador).
Fig. 183. *Heliconia cythera* Hewitson, syntype ♂ (Ecuador).
Fig. 184. *Heliconius vulcanus* form *concinna* Stichel, holotype ♂ (Balzapamba, Ecuad.).
Fig. 185. *H. xenoclea* var. *confluens* Lathy, syntype ♂ (Pichis Rd., Peru).
Fig. 186. *H. batesi* Riffarth, syntype ♂ (Peru?).
Fig. 187. *Heliconia xenoclea* Hewitson, syntype ♂.
Fig. 188. *Heliconius xenoclea* var. *superba* Lathy, holotype ♂ (Rio Colorado, Peru).



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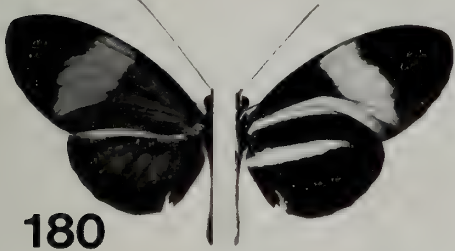

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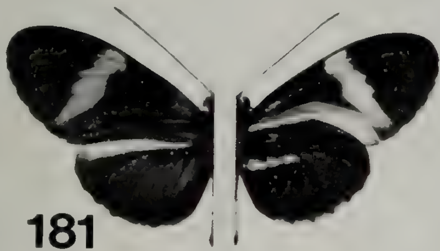

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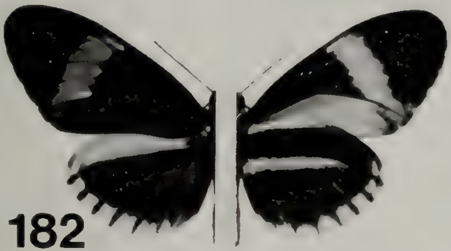

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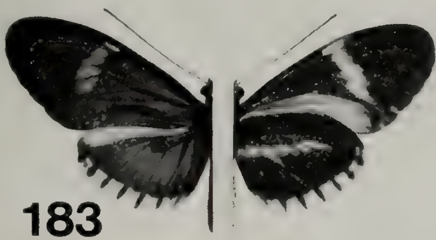

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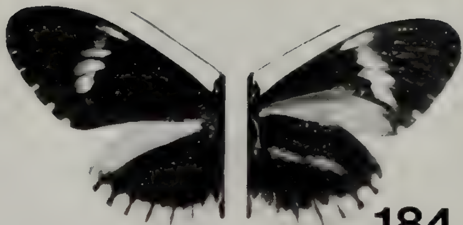

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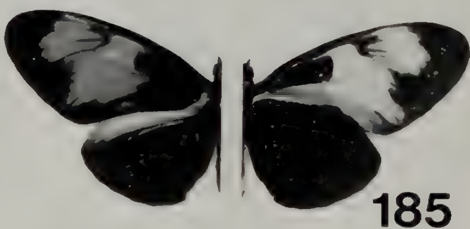

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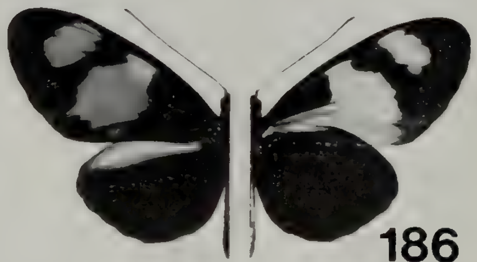

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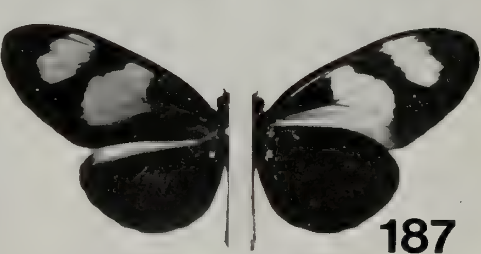

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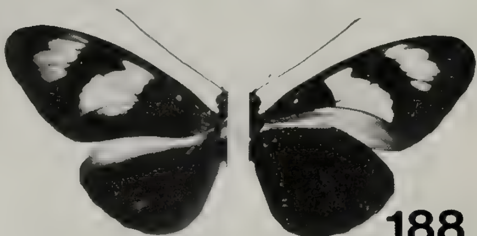

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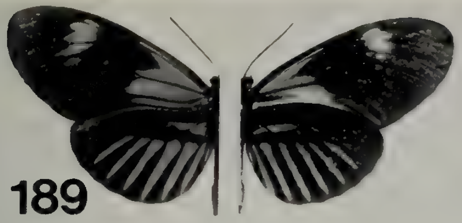
PLATE 19

Upper- and underside

Fig. 189. *Heliconius melpomene riffarthi* Stichel, syntype ♀ (Ucayali).
Fig. 190. *H. melpomene riffarthi* form *rubescens* Stichel, holotype ♂ (Chuchurras, Peru).
Fig. 191. *H. amaryllis* Felder & Felder, syntype ♂ (Rio Negro).
Fig. 192. *H. melpomene melpophylla* Joicey & Kaye, holotype ♀.
Fig. 193. *H. batesi* form *plesseni* Riffarth, syntype ♂ (Pastazza super., Ecuador).
Fig. 194. *H. batesi plesseni* form *rubicunda* Niepelt, syntype ♀.
Fig. 195. *H. batesi plesseni* form *corona* Niepelt, syntype ♂.
Fig. 196. *H. batesi plesseni* form *pura* Niepelt, syntype ♀ (Ob. Pastaza, Ecuad.).
Fig. 197. *H. batesi plesseni* form *adonis* Riffarth, syntype ♂.
Fig. 198. *H. melpomene aglaope* form *fraterna* Niepelt, syntype ♂ (Ecuador, Canelos).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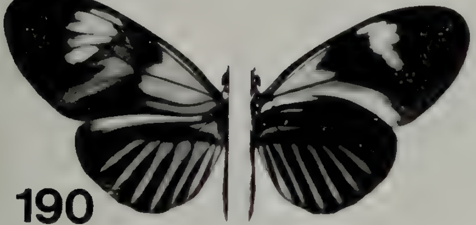
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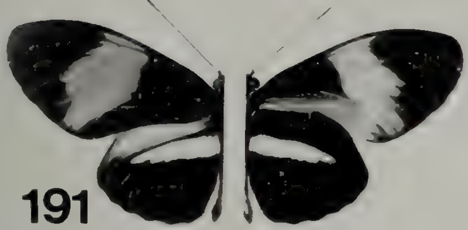
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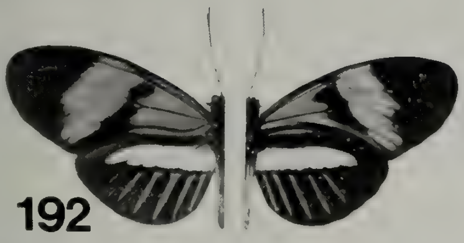
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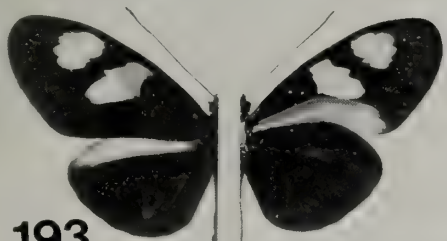
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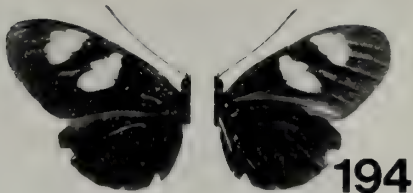
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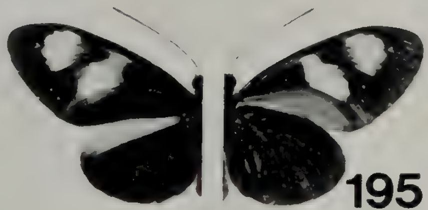
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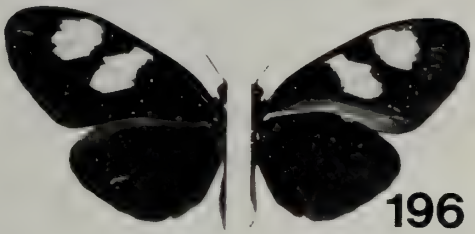
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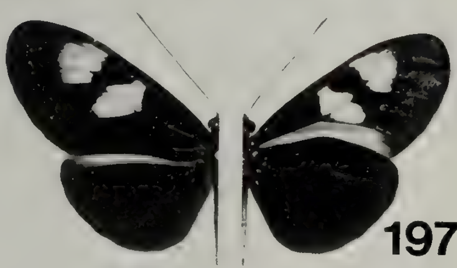
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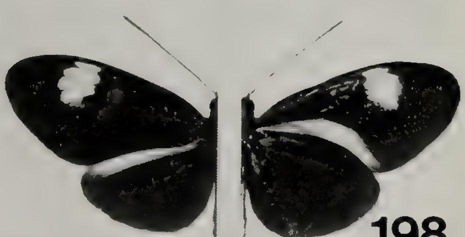
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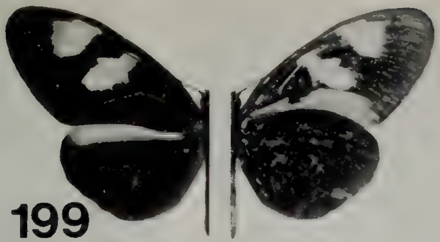
PLATE 20

Upper- and underside

FIG. 199. *Heliconius xenoclea plesseni* form *clytie* Neustetter, holotype ♂ (Guayes, Ecuador).
FIG. 200. *Heliconia unimaculata* Hewitson, syntype ♂ (Ecuador).
FIG. 201. *Heliconius melpomene aglaope* form *niepelti* Riffarth, syntype ♂ (Pastaza sup., Ecuad.).
FIG. 202. *H. melpomene aglaope* form *iris* Riffarth, holotype ♂ (Ob. Pastaza, Ecuad.).
FIG. 203. *H. melpomene aglaope* form *isolda* Niepelt, syntype ♂(Jibaria).
FIG. 204. *H. melpomene aglaope* form *cognata* Riffarth, syntype ♂ (Pozuzo, Peru).
FIG. 205. *H. melpomene aglaope* form *rubra* Stichel, syntype ♂ (Cuzco).
FIG. 206. *H. aglaope* Felder & Felder, syntype ♂ (Rio Negro).
FIG. 207. *H. melpomene aglaope* form *parva* Neustetter, holotype ♂ (S. Columbien, Mocoa).
FIG. 208. *H. melpomene aglaope* form *paula* Neustetter, holotype ♂ (S. Columbien, Mocoa).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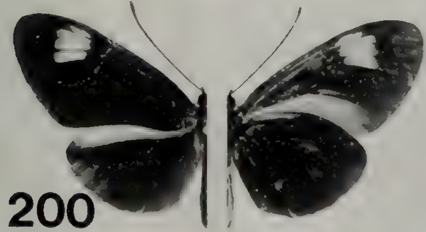
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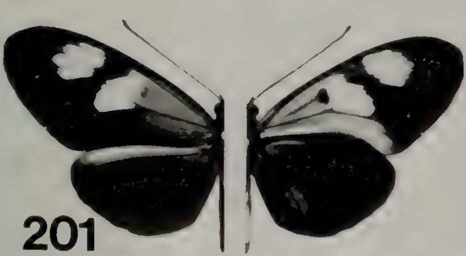
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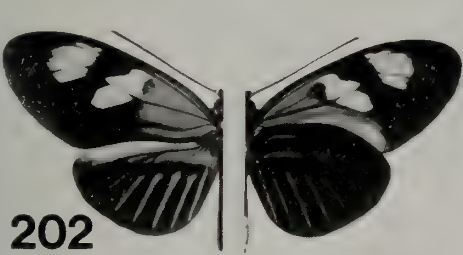
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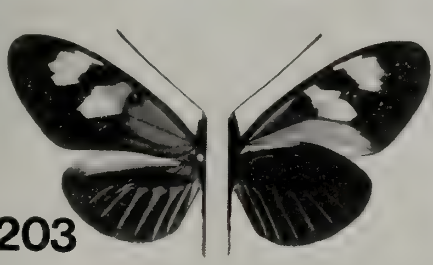
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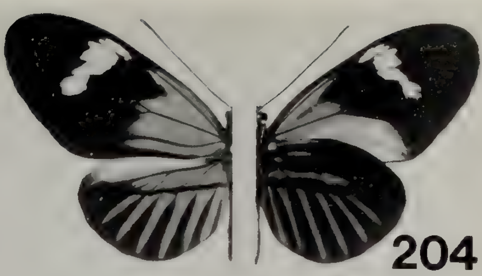
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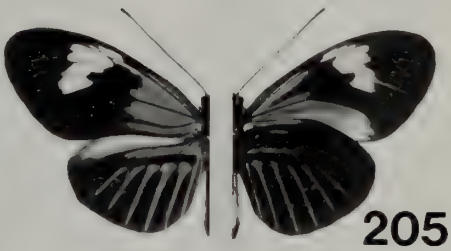
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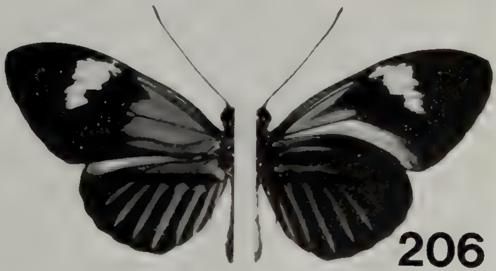
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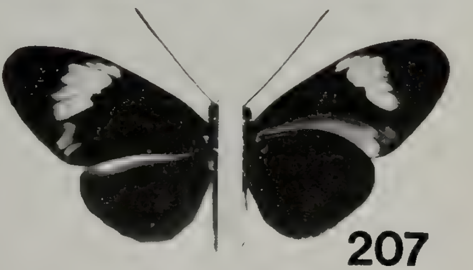
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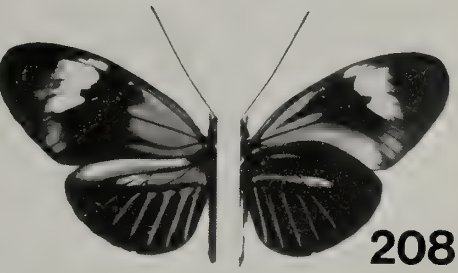
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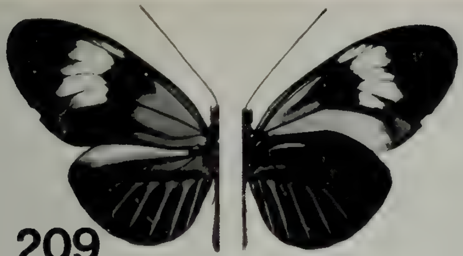
PLATE 21

Upper- and underside

FIG. 209. *Heliconius melpomene aglaope* form *aurofasciata* Neustetter, holotype ♂ (S. Columbien, Mocoa).
FIG. 210. *H. amaryllis flagrans* Stichel, syntype ♂ (Trinidad, Port of Spain).
FIG. 211. *H. melpomene eltringhami* Joicey & Kaye, holotype ♂ (St. Laurent, Maroni River).
FIG. 212. *H. melpomene* form *luteipicta* Neustetter, syntype ♂ (St. Laurent, Guyana).
FIG. 213. *H. melpomene* form *flavorubra* Neustetter, syntype ♂ (St. Laurent, Guyana).
FIG. 214. *H. melpomene melpomene* ab. *primus* Joicey & Kaye, holotype ♂ (Guyane Francse., St-Jean du Maroni).
FIG. 215. *H. melpomene melpomene* ab. *collis* Joicey & Kaye, holotype ♂ (Guyane Francse., Nouveau Chantier).
FIG. 216. *H. melpomene melpomene* ab. *compacta* Joicey & Kaye, holotype ♂ (Guyane Francse., St-Jean du Maroni).
FIG. 217. *H. melpomene melpomene* ab. *melpina* Joicey & Kaye, holotype ♀ (Guyane Francse., St-Laurent du Maroni).
FIG. 218. *H. melpomene melpomene* ab. *faivrei* Joicey & Kaye, holotype ♀ (Guyane Francse., St-Jean du Maroni).



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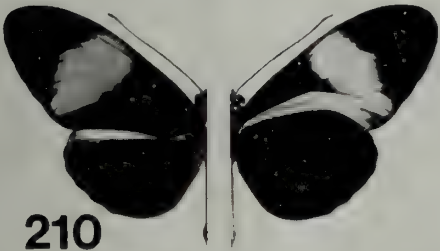

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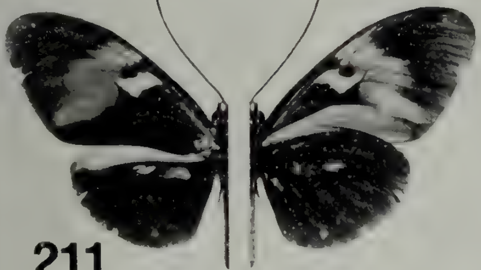

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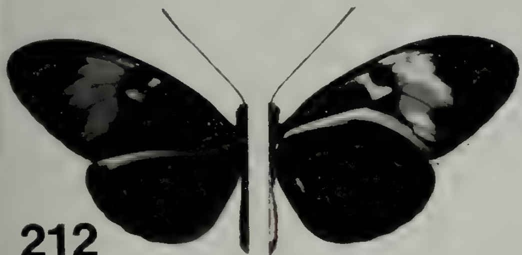

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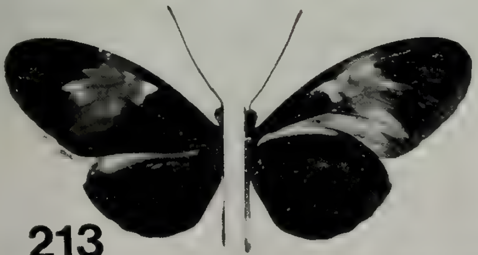

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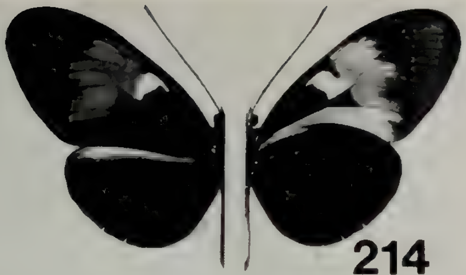

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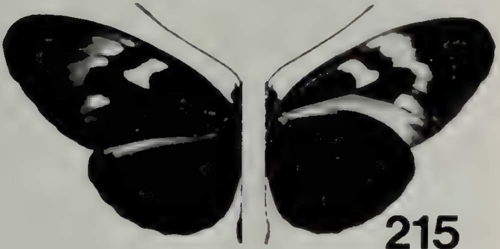

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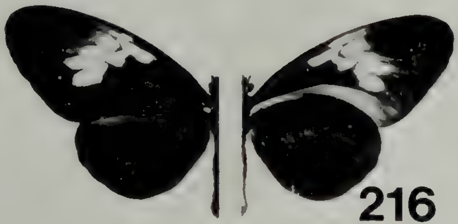

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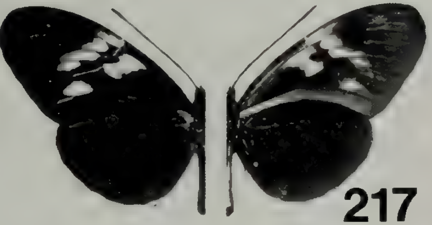

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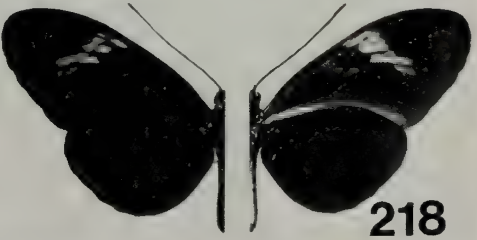

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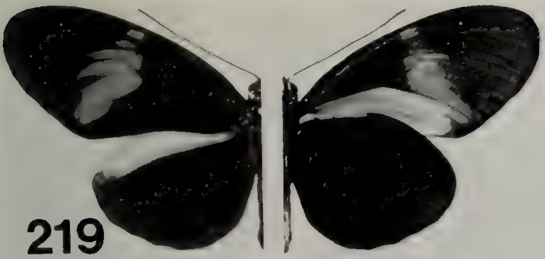
PLATE 22

Upper- and underside

FIG. 219. *Heliconius melpomene* ab. *atrosecta* Riffarth, syntype ♂ (Obidos).
FIG. 220. *H. melpomene funebris* form *obscurata* Riffarth, holotype ♂ (Berg en Dal, Sur.).
FIG. 221. *H. melpomene cybele* ab. *cybeleia* Joicey & Kaye, holotype ♂ (Guyane Francse., St-Jean du Maroni).
FIG. 222. *H. melpomene cybele* ab. *negroida* Joicey & Kaye, holotype ♂ (Guyane Francse., St-Jean du Maroni).
FIG. 223. *H. melpomene cybele* ab. *faustalia* Joicey & Kaye, holotype ♀ (Guyane Francse., St-Jean du Maroni).
FIG. 224. *H. melpomene* form *aurelia* Neustetter, syntype ♂ (Guyane Franç. Maroni).
FIG. 225. *H. melpomene cybele* ab. *dianides* Joicey & Kaye, holotype ♂ (Guyane Francse., St-Jean du Maroni).
FIG. 226. *H. melpomene* form *lavinia* Neustetter, syntype ♂ (St. Laurent, Guyana).
FIG. 227. *H. melpomene cybele* ab. *elegantula* Joicey & Kaye, holotype ♂ (Guyane Fr., St. Jean).
FIG. 228. *H. melpomene cybele* ab. *maris* Joicey & Kaye, holotype ♀ (Guyane Francse., St-Jean du Maroni).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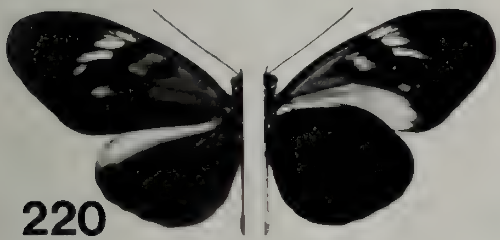
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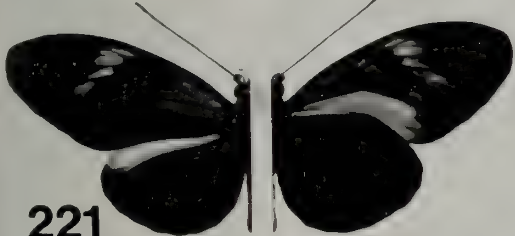
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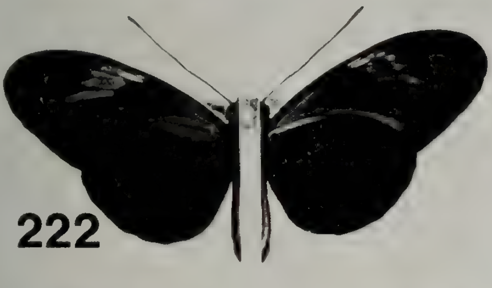
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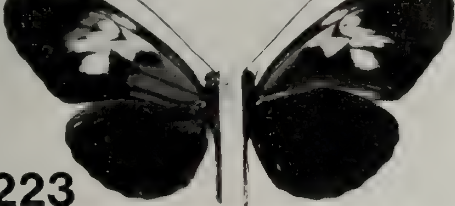
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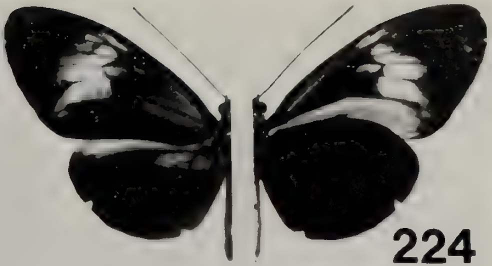
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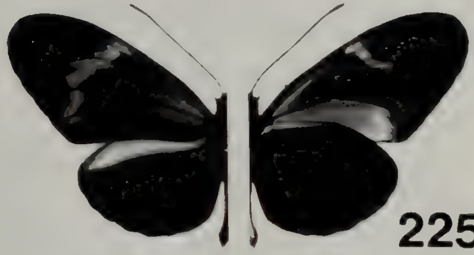
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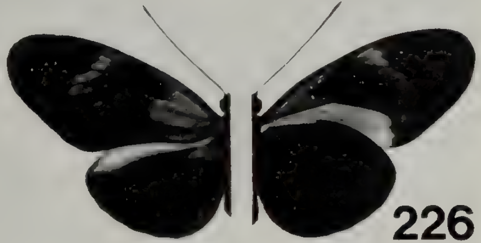
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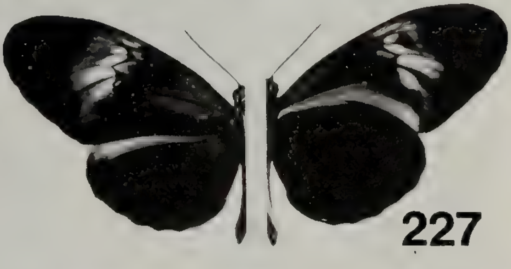
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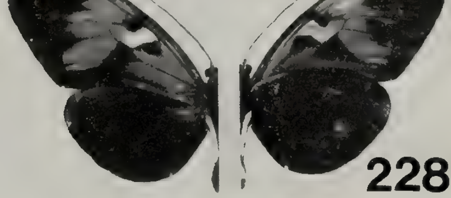
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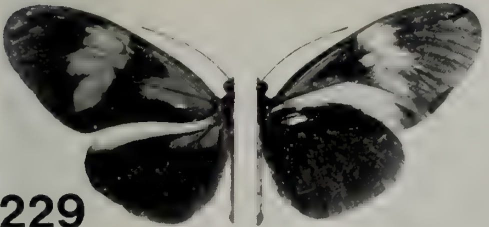
PLATE 23

Upper- and underside

Fig. 229. *Heliconius melpomene* ab. *diana* Riffarth, holotype ♂ (Cayenne?).
Fig. 230. *H. mutabilis* Butler, syntype ♀ (Amazons Trail).
Fig. 231. *H. melpomene thelxiope* ab. *stygianus* Joicey & Kaye, holotype ♂ (Guyane Francse., St-Jean du Maroni).
Fig. 232. *H. thelxiope* var. *aglaopeia* Staudinger, syntype ♂ (Cayenne).
Fig. 233. *H. melpomene* form *penelopides* Neustetter, holotype ♂ (St. Laurent, Guyana).
Fig. 234. *H. melpomene thelxiope* ab. *negroidens* Joicey & Kaye, syntype ♂ (Guyane Francse., St-Jean du Maroni).
Fig. 235. *H. melpomene* form *laurentina* Neustetter, holotype ♂ (St. Laurent, Guyana).
Fig. 236. *H. melpomene* form *athalia* Neustetter, holotype ♂ (St. Laurent, Guyana).
Fig. 237. *H. melpomene* var. *augusta* Riffarth, paratype ♂ (Cayenne).
Fig. 238. *H. melpomene thelxiope* ab. *majestica* Joicey & Kaye, holotype ♂ (Guyane Francse., Nouveau Chantier).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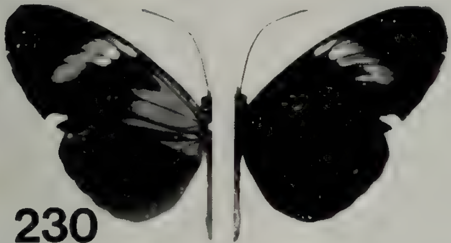
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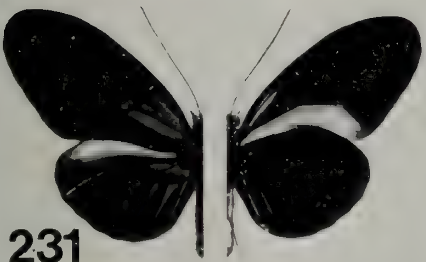
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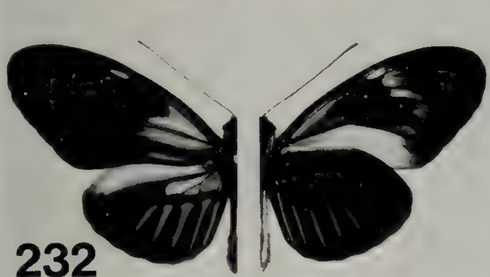
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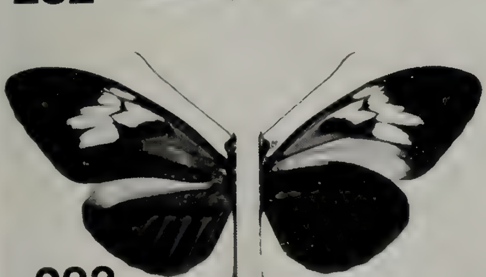
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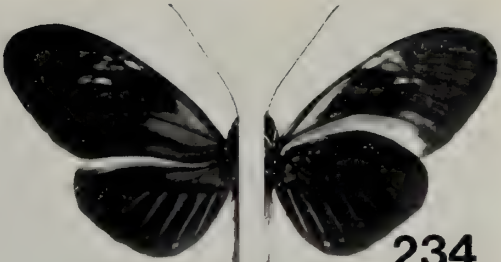
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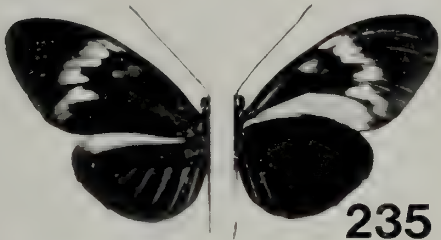
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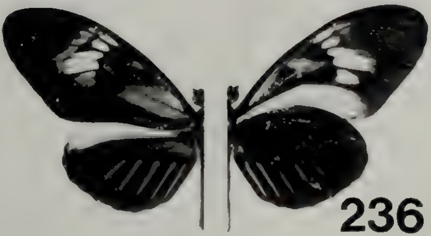
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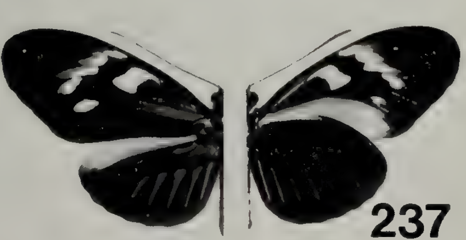
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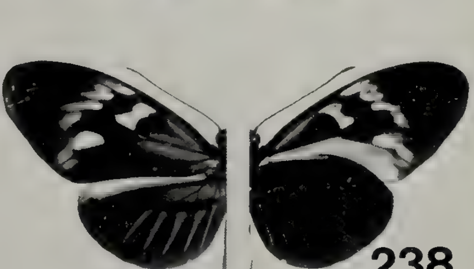
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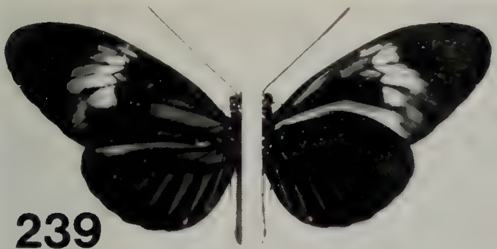
PLATE 24

Upper- and underside

- Fig. 239. *Heliconius melpomene thelxiope* ab. *lucindella* Joicey & Kaye, holotype ♂ (Guyane Francse., St-Jean du Maroni).
- Fig. 240. *H. melpomene thelxiope* ab. *punctarius* Joicey & Kaye, holotype ♀ (Guyane Francse., St-Jean du Maroni).
- Fig. 241. *H. hippolyte* Bates, syntype ♂ (Tapajos, Amazons).
- Fig. 242. *H. rufolimbata* Butler, syntype ♂ (Rio Tapayos).
- Fig. 243. *H. tyche* Bates, syntype ♂ (Serpa, Amazons).
- Fig. 244. *H. melpomene madeira* Riley, syntype ♂ (Lower Madeira).
- Fig. 245. *H. amaryllis* var. *euryades* Riffarth, syntype ♂ (Vilcanota, Peru).
- Fig. 246. *H. penelope* form *aida* Neustetter, syntype ♂ (Bolivia).
- Fig. 247. *H. penelope* form *excellens* Neustetter, holotype ♂ (Bolivia).
- Fig. 248. *H. penelope* form *carnea* Neustetter, holotype ♂ (Bolivia).



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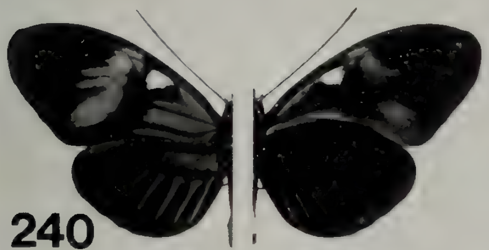

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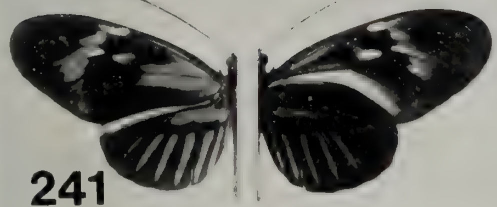

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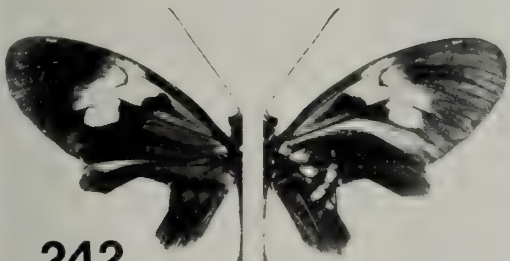

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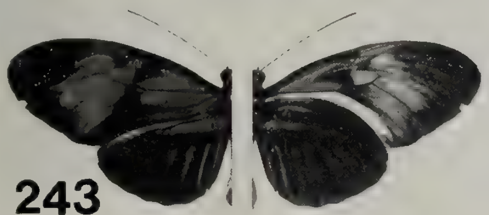

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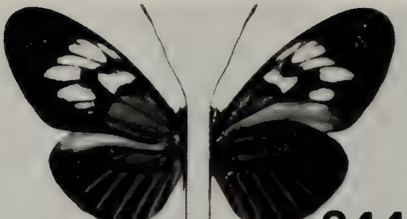

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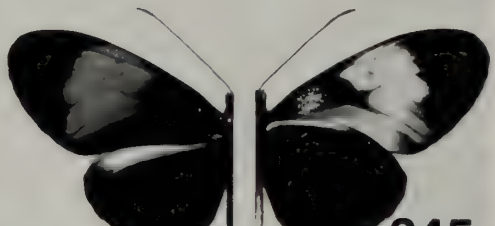

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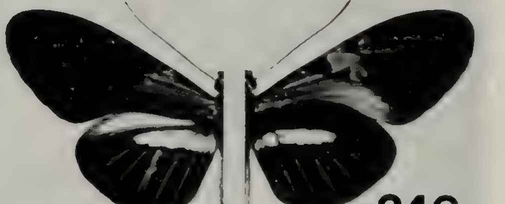

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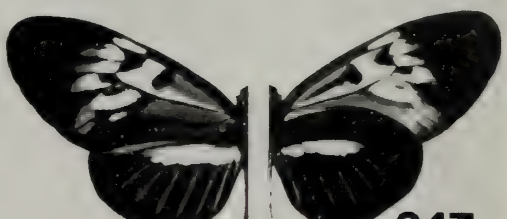

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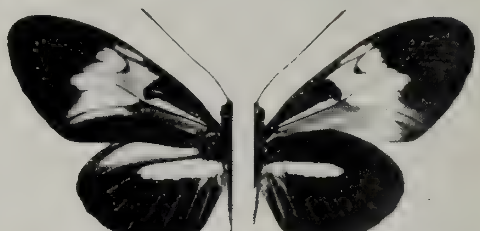

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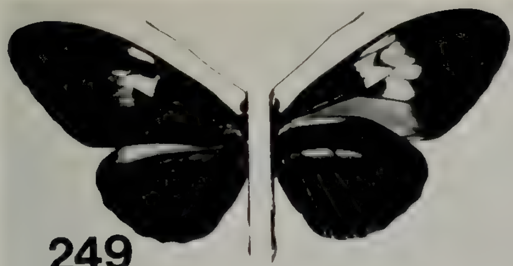
PLATE 25

Upper- and underside

FIG. 249. *Heliconius penelope* form *noctis* Neustetter, syntype ♂ (Bolivia).
FIG. 250. *H. penelope* form *amneris* Neustetter, syntype ♂ (Bolivia).
FIG. 251. *H. melpomene* ab. *margarita* Riffarth, syntype ♂ (Bolivia).
FIG. 252. *H. amandus* Grose-Smith & Kirby, syntype ♂ (Bolivia).
FIG. 253. *H. phyllis* form *flammea* Niepelt, holotype ♂ (Bolivia).
FIG. 254. *H. penelope* form *biedermanni* Niepelt, syntype ♂ (Bolivia).
FIG. 255. *H. penelope* form *amandoides* Neustetter, syntype ♂ (Bolivia).
FIG. 256. *H. nanna burchelli* Poulton, syntype ♂ (Chapada, Matto Grosso).
FIG. 257. *H. melpomene burchelli* form *curvifascia* Talbot, holotype ♂ (Melguira, Matto Grosso).
FIG. 258. *H. melpomene burchelli* form *obscurifascia* Talbot, holotype ♀ (Melguira, Matto Grosso).



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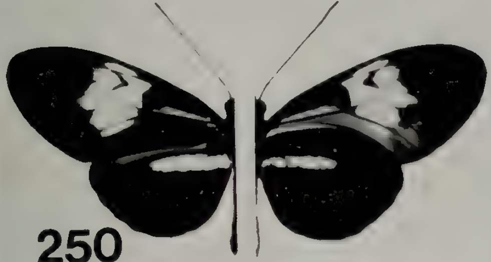

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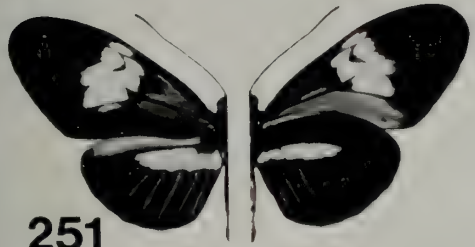

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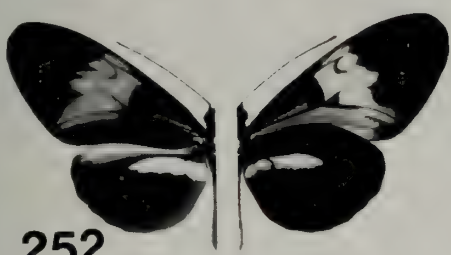

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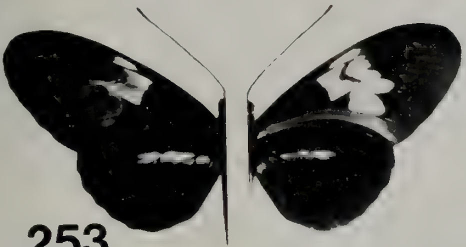

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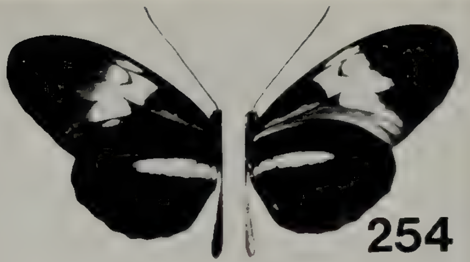

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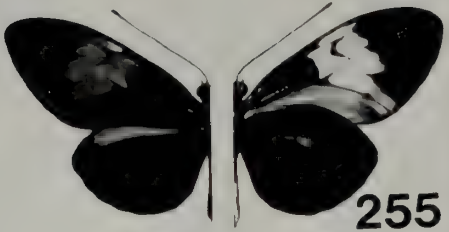

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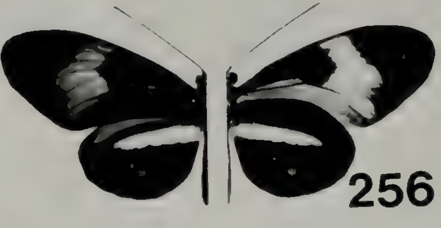

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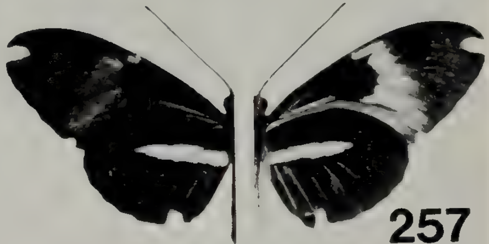

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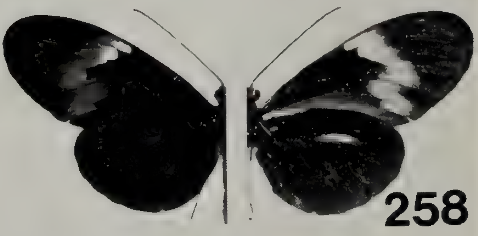

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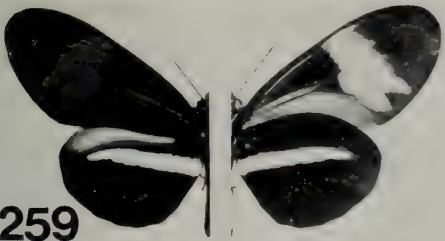
PLATE 26

Upper- and underside

FIG. 259. *Heliconius nanna* Stichel, syntype ♂ (Brasilia, Espirito Santo).
FIG. 260. *H. galanthus* Bates, syntype ♂ (Forests of N. Vera Paz).
FIG. 261. *Heliconia diotrephes* Hewitson, syntype ♀ (Nicaragua).
FIG. 262. *Heliconius cydno galanthus* form *exornata* Riffarth, syntype ♂ (Carillo, Costa Rica).
FIG. 263. *H. chioneus* Bates, holotype ♂ (Lion Hill, Panama).
FIG. 264. *Heliconia cydno* Doubleday, syntype ♀ (Bogota).
FIG. 265. *Heliconius cydno cydnides* form *azteka* Neustetter, holotype ♂ (Solano, W. Col.).
FIG. 266. *H. cydno cydnides* form *confluens* Neustetter, syntype ♂ (Solano, Yapura).
FIG. 267. *Heliconia aventina* Oberthür, holotype ♀ (Nouve Grenade).
FIG. 268. *H. temerinda* Hewitson, syntype ♂ (Villagomes, N. Granada).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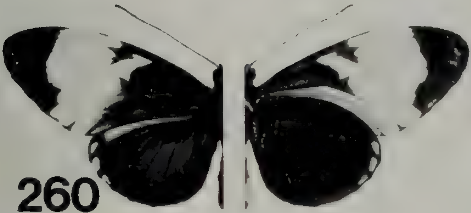
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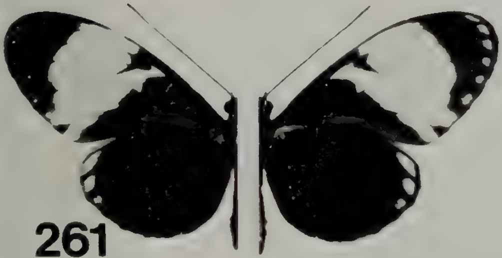
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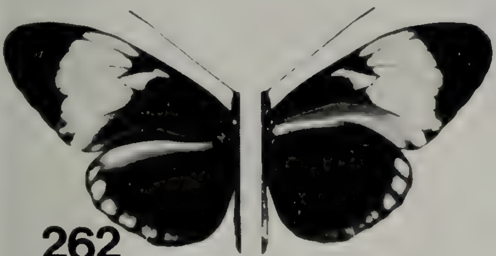
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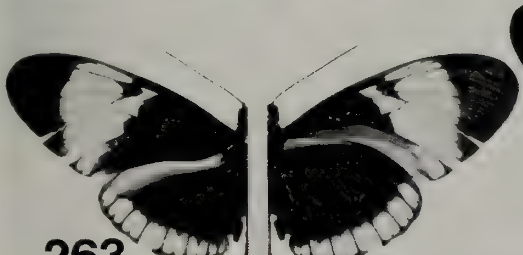
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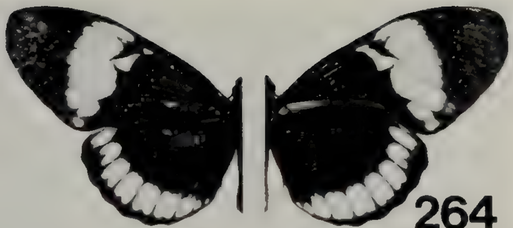
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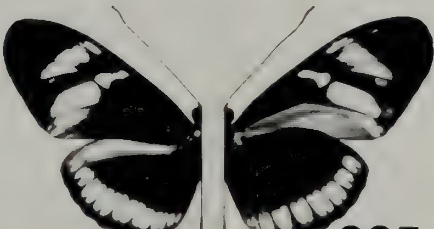
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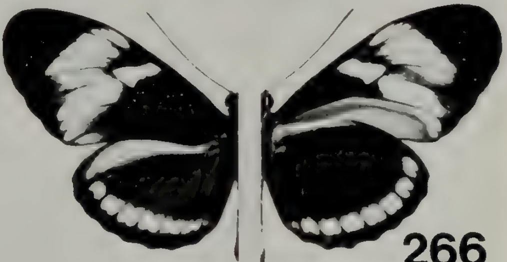
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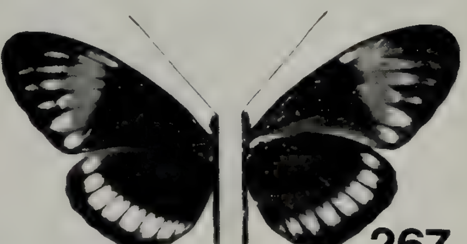
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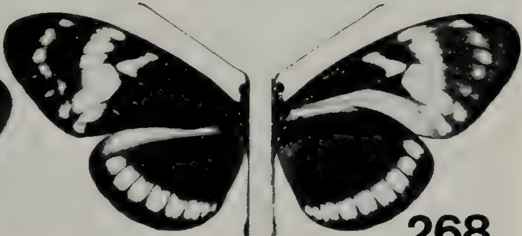
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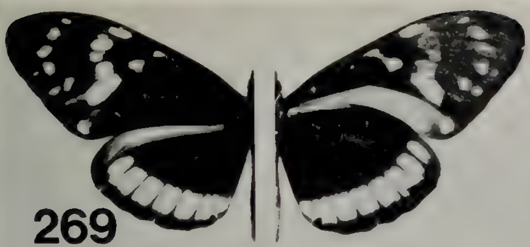
PLATE 27

Upper- and underside

FIG. 269. *Heliconia hermogenes* Hewitson, syntype ♂.
FIG. 270. *Heliconius zelinde* Butler, syntype ♂ (W. coast of America).
FIG. 271. *H. cydno cydnides* form *flavidior* Neustetter, holotype ♂ (Solano, Yapura).
FIG. 272. *H. cydno cydnides* form *albidior* Neustetter, holotype ♂ (Rio Putumayo, Montegoa).
FIG. 273. *H. weymeri* Staudinger, syntype ♂ (R. Dagua, Columb.).
FIG. 274. *H. weymeri* ab. *sulphureomaculata* Fassl, syntype ♀ (Rio Aguacatal, Colomb.).
FIG. 275. *H. weymeri submarginatus* Fassl, syntype ♀ (Rio Aguacatal, Colomb.).
FIG. 276. *H. weymeri* ab. *gustavi* Staudinger, syntype ♂ (R. Dagua, Columb.).
FIG. 277. *H. wernickei* Weymer, holotype ♂ (Bogota, Columbien).
FIG. 278. *H. emilius* Weymer, holotype ♂ (Muzo, Colombia).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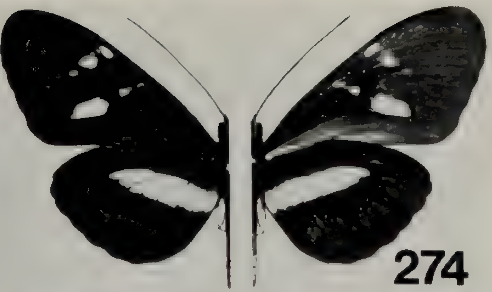
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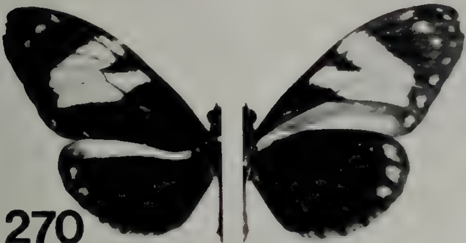
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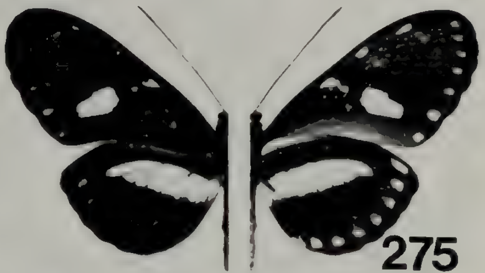
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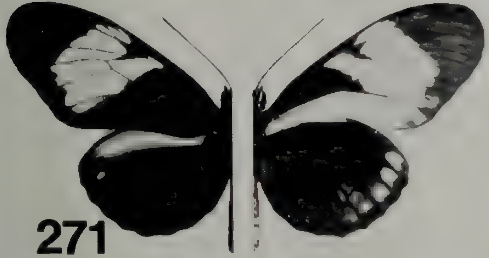
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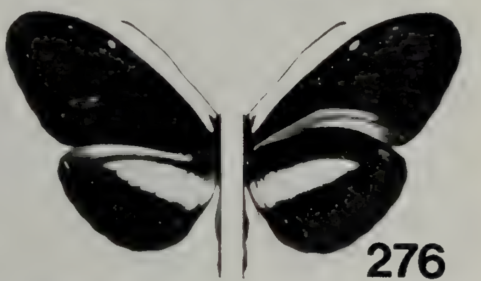
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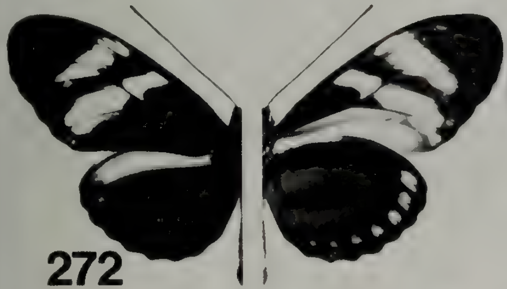
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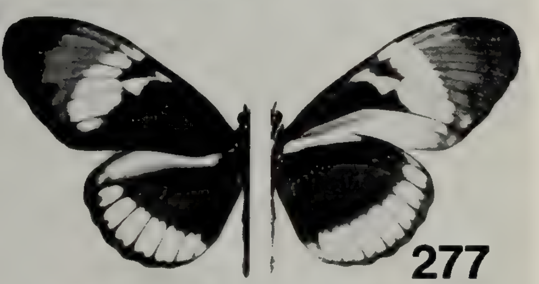
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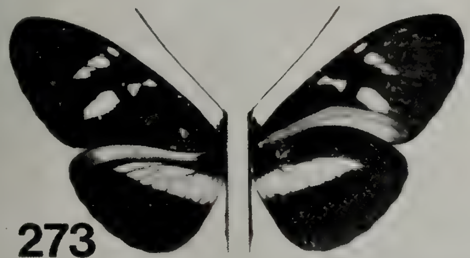
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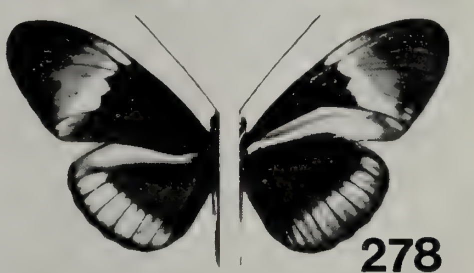
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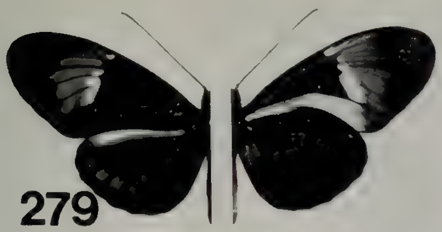
PLATE 28

Upper- and underside

FIG. 279. *Heliconius rubellius* Grose-Smith & Kirby, syntype ♂ (Columb.).
FIG. 280. *H. cydno broncus* Stichel, syntype ♀ (Peru?).
FIG. 281. *H. cydno* ab. *haenschi* Riffarth, syntype ♂ (Balzapamba, Ecuad.).
FIG. 282. *Heliconia alithea* Hewitson, syntype ♂ (Ecuador).
FIG. 283. *Heliconius alithea neustetteri* Riffarth, syntype ♂ (Balzapamba, Ecuad.).
FIG. 284. *H. cydno alithea* form *egregia* Riffarth, syntype ♂ (Balzapamba, Ecuad.).
FIG. 285. *H. melpomene timareta* form *insolita* Riffarth, syntype ♂ (Santa Jnéz, Ecuad.).
FIG. 286. *Heliconia timareta* Hewitson, syntype ♂ (Ecuador).
FIG. 287. *Heliconius pachinus* Salvin, syntype ♂ (Chiriqui, Panama).
FIG. 288. *H. hermathena* form *vereatta* Stichel, holotype ♂ (N. Brasilien, Faro).



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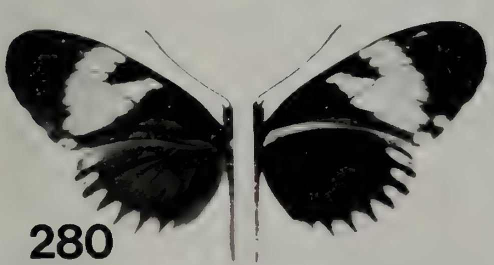

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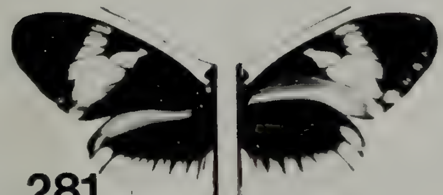

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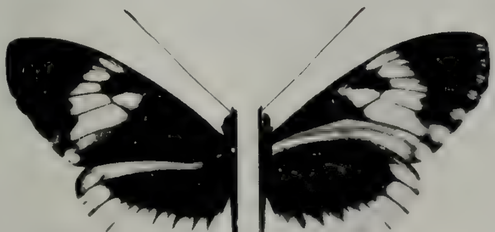

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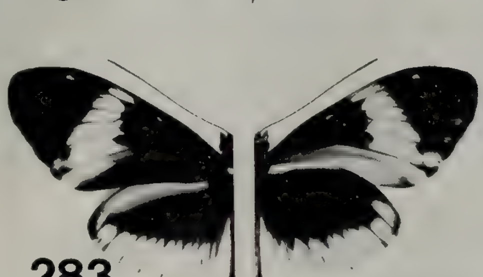

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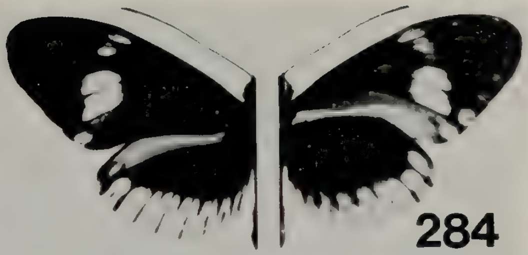

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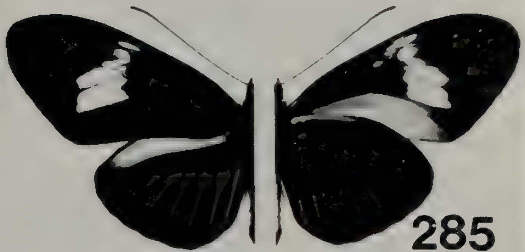

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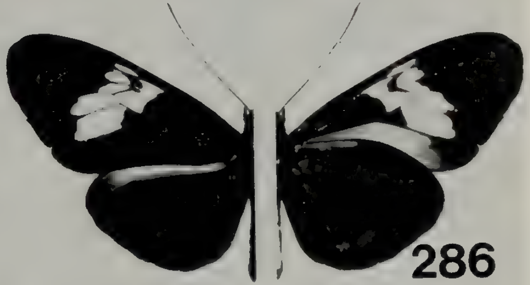

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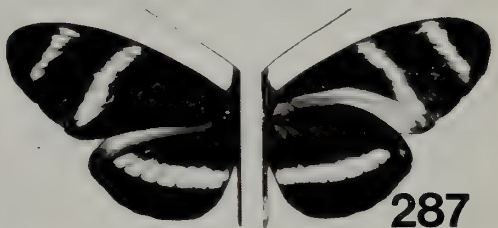

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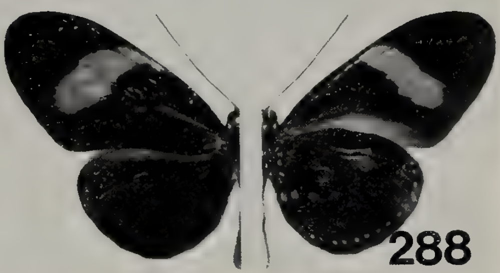

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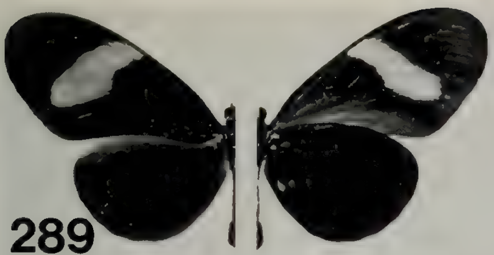
PLATE 29

Upper- and underside

FIG. 289. *Heliconius hermathena* form *hydarina* Stichel, holotype ♀ (N. Brasilien, Faro).
FIG. 290. *Heliconia hermathena* Hewitson, syntype ♀ (Amazons).
FIG. 291. *H. himera* Hewitson, syntype ♂ (Ecuador).
FIG. 292. *H. petiverana* Doubleday, syntype ♂ (Mexico).
FIG. 293. *Heliconius hydara* var. *antigona* Riffarth, holotype ♂ (Columbien).
FIG. 294. *Heliconia chestertonii* Hewitson, syntype ♀ (N. Granada).
FIG. 295. *Heliconius molina* Grose-Smith, syntype ♂ (Valdevia, Colombia).
FIG. 296. *H. hydara* ab. *nocturna* Riffarth, holotype ♂ (Venezuela).
FIG. 297. *H. cyrbia* ab. *diformata* Riffarth, syntype ♂ (Ecuador, Quito).
FIG. 298. *H. cyrbia cyrbia* form *bella* Riffarth, syntype ♂ (Slanos, Ecuador).
FIG. 299. *H. erato eratophylla* Joicey & Kaye, holotype ♀ (Tarapo, Peru).
FIG. 300. *H. erato estrella* form *agnata* Stichel, holotype ♀ (Ucayali).



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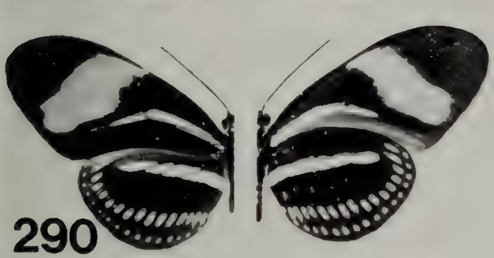

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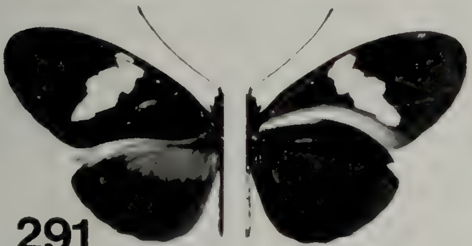

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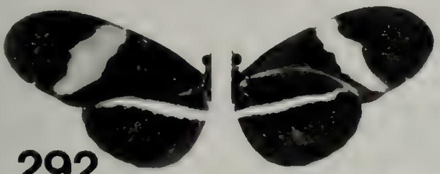

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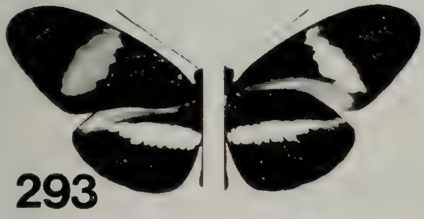

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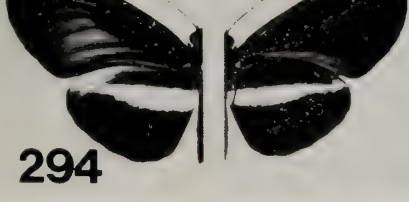

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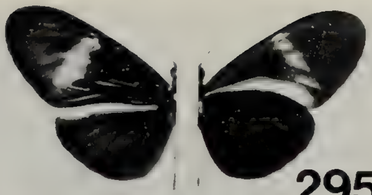

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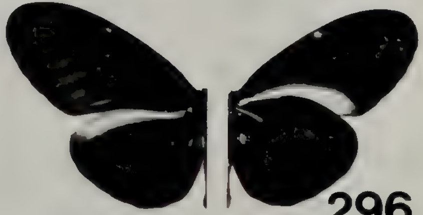

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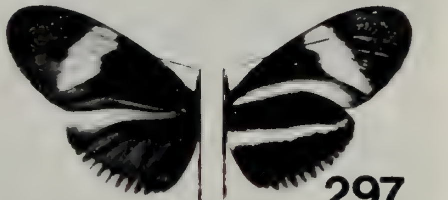

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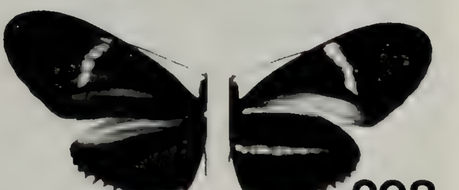

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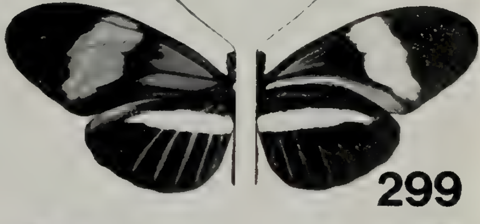

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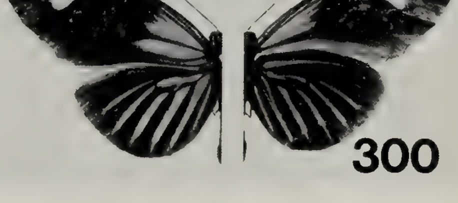
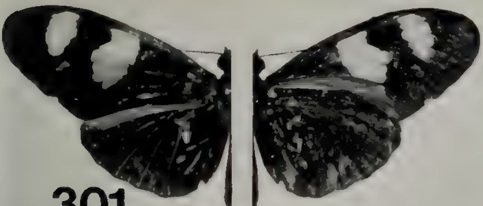


300

PLATE 30

Upper- and underside

FIG. 301. *Heliconius notabilis* Salvin & Godman, syntype ♂ (Canelos, Ecuador).
FIG. 302. *H. erato simplex* form *rosacea* Riffarth, holotype ♂ (Pastaza sup., Ecuador).
FIG. 303. *H. microclea notabilis* form *radiata* Oberthür, holotype ♀ (Guayaquil).
FIG. 304. *H. erato estrella* from *beata* Riffarth, holotype ♀ (Ob. Pastaza, Ecuad.).
FIG. 305. *H. erato estrella* form *rothschildi* Niepelt, syntype ♂ (Ecuador, Canelos).
FIG. 306. *H. erato estrella* form *ochracea* Riffarth, holotype ♂ (Ob. Pastaza, Ecuad.).
FIG. 307. *H. erato estrella* form *ilia* Niepelt, holotype ♂ (Ob. Pastaza, Ecuad.).
FIG. 308. *H. etylus* Salvin, syntype ♂ (Gualaquiza, Ecuador).
FIG. 309. *H. phyllis emma* Riffarth, syntype ♂ (Amazon super.).
FIG. 310. *H. erato estrella* form *palmata* Stichel, holotype ♂ (Ucayali).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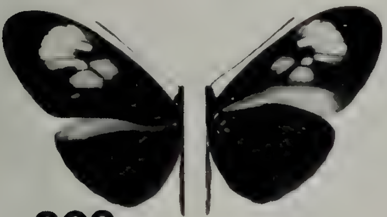
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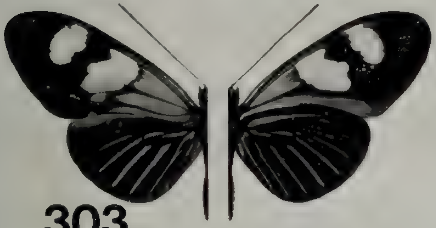
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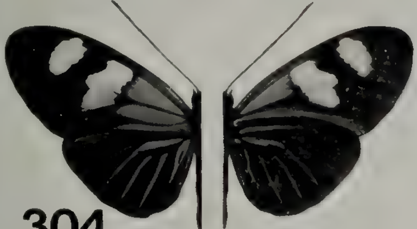
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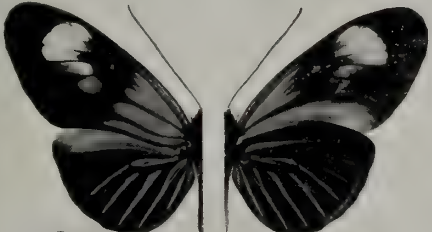
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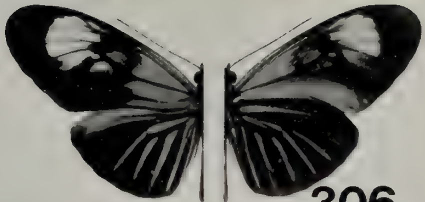
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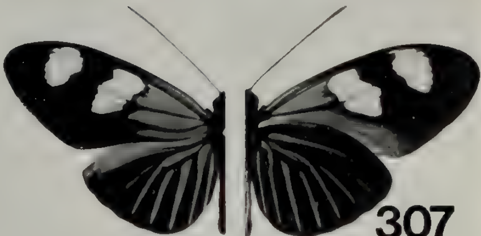
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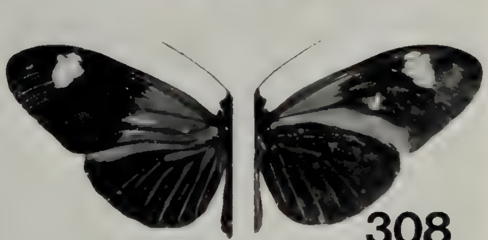
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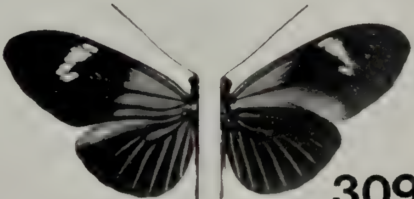
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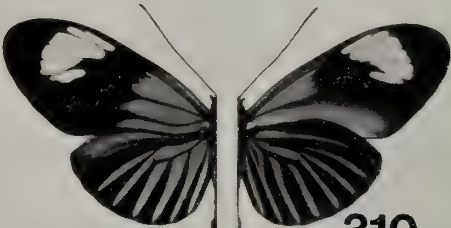
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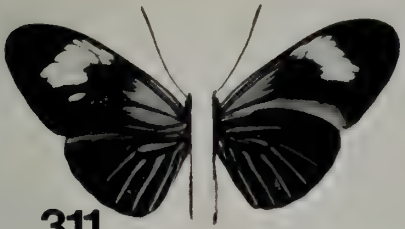
PLATE 31

Upper- and underside

FIG. 311. *Heliconius lativitta* Butler, syntype ♂ (Boa Vista, Rio Madeira).
FIG. 312. *H. estrella* form *glaucina* Neustetter, holotype ♀ (S. Columbien, Mocoa).
FIG. 313. *H. estrella* form *meliorina* Neustetter, syntype ♂ (S. Columbien, Mocoa).
FIG. 314. *H. erato estrella* form *problemata* Neustetter, syntype ♂ (S. Columbien, Mocoa).
FIG. 315. *H. petiverana* ab. *tristis* Riffarth, holotype ♂ (Chiriqui).
FIG. 316. *Heliconia hydara* Hewitson, syntype ♂ (N. Granada).
FIG. 317. *Heliconius cyrbia* var. *juno* Riffarth, holotype ♂.
FIG. 318. *H. phyllis* var. *viculata* Riffarth, syntype ♂ (Surinam).
FIG. 319. *H. erato rubrizona* Joicey & Kaye, syntype ♂ (Santarem).
FIG. 320. *H. phyllis* ab. *callista* Riffarth, syntype ♀ (Amazon super.).



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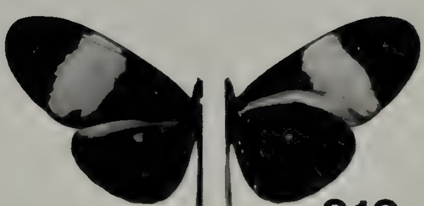

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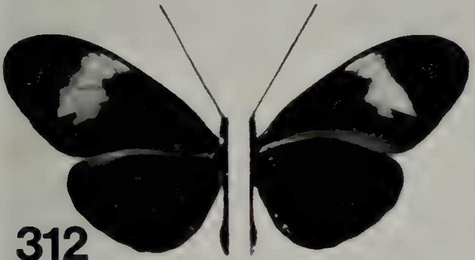

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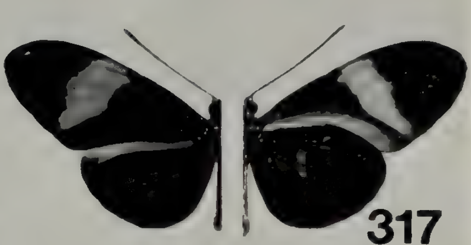

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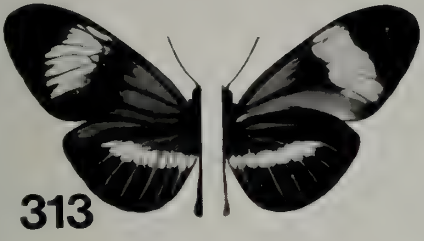

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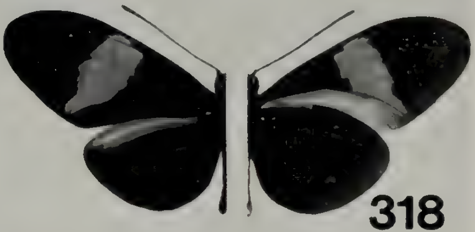

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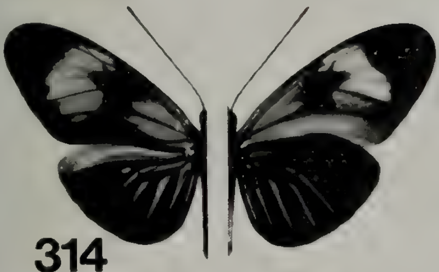

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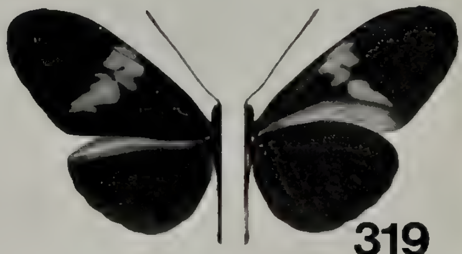

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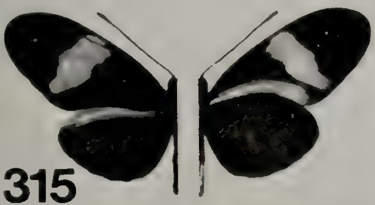

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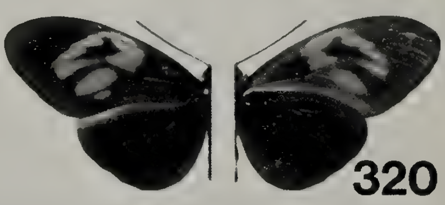
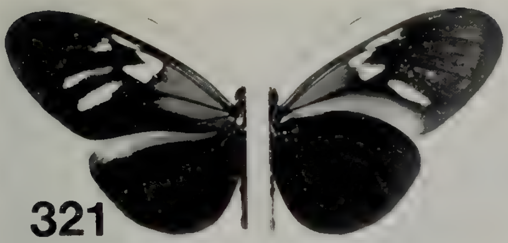


320

PLATE 32

Upper- and underside

Fig. 321. *Heliconius erato cybelinus* form *helena* Riffarth, syntype ♂ (Obidos).
Fig. 322. *H. phyllis* ab. *amalfreda* Riffarth, syntype ♂ (Surinam).
Fig. 323. *H. phyllis* ab. *dryope* Riffarth, syntype ♂ (Surinam).
Fig. 324. *H. coralii* Butler, syntype ♂ (Serpa).
Fig. 325. *H. erato erato* ab. *cybelellus* Joicey & Kaye, syntype ♂ (Serpa, Lower Amazon).
Fig. 326. *H. erato oberthueri* Riffarth, syntype ♀ (Berg en Daal, Sur.).
Fig. 327. *H. erato* ab. *hemicycla* Joicey & Kaye, syntype ♀ (Guyane Francse., St. Jean du Maroni).
Fig. 328. *H. erato erato* form *fuiginosa* Riffarth, syntype ♀ (Cayenne).
Fig. 329. *H. erato* ab. *constricta* Joicey & Kaye, holotype ♂ (Guyane Francse., St. Jean du Maroni).
Fig. 330. *H. vesta* var. *tellus* Oberthür, holotype ♂ (Cayenne).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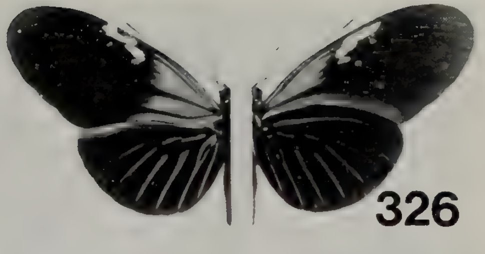
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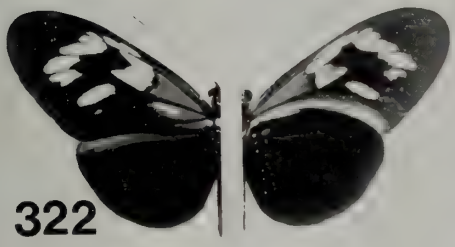
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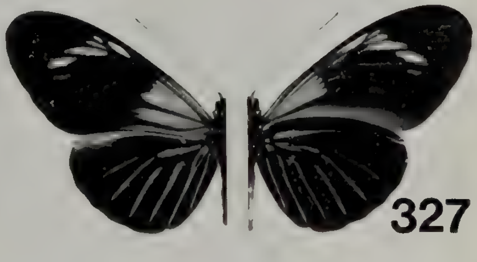
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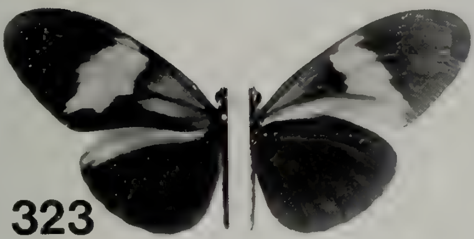
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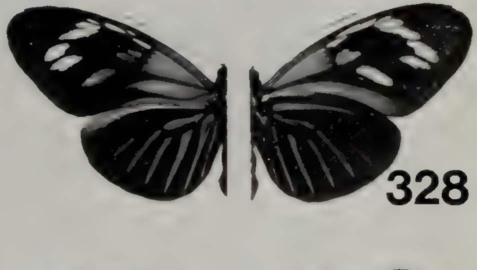
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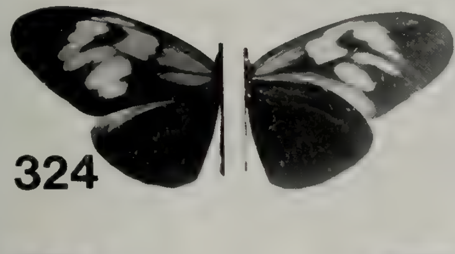
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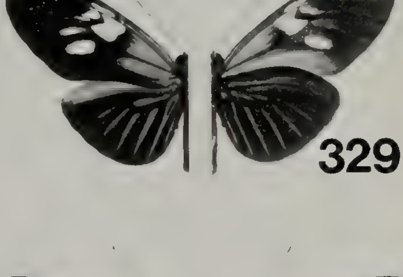
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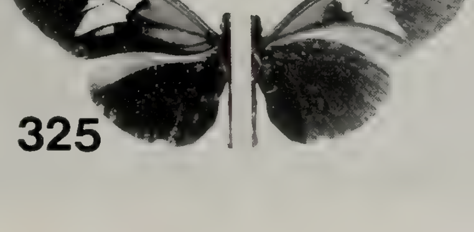
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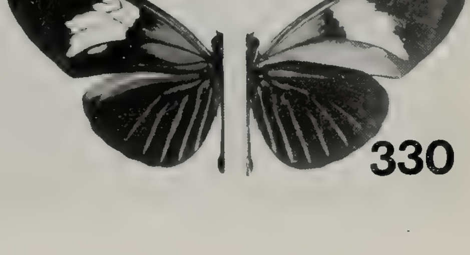
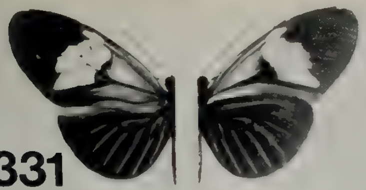

330

H

PLATE 33

Upper- and underside

FIG. 331. *Heliconius erato* ab. *telloides* Joicey & Talbot, holotype ♀ (Guyane Française, Godebert, Maroni).
FIG. 332. *H. erato* ab. *protea* Joicey & Kaye, holotype ♀ (Guyane Francse., St. Jean du Maroni).
FIG. 333. *H. erato* form *roseoflava* Neustetter, syntype ♂ (St. Laurent, Guyana).
FIG. 334. *H. estrella* Bates, syntype ♂ (Marajo I., Amazons).
FIG. 335. *H. phyllis andremona* ab. *androdaixa* Seitz, holotype ♂ (Bragance, Para).
FIG. 336. *H. erato estrella* form *simplex* Riffarth, holotype ♂ (Cajon, Süd-Peru).
FIG. 337. *H. phyllis amphitrite* Riffarth, syntype ♂ (Hillapani, Peru).
FIG. 338. *H. erato amphitrite* ab. *unipuncta* Joicey & Kaye, syntype ♂ (Tirapata, Pérou).
FIG. 339. *H. venustus* Salvin, syntype ♂ (Apolobamba, Bolivia).
FIG. 340. *H. erato diva* Stichel, holotype ♂ (Bolivia).
FIG. 341. *Heliconia anactorie* Doubleday, syntype ♂ (Bolivia).



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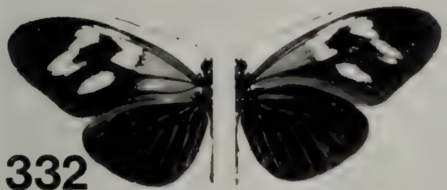

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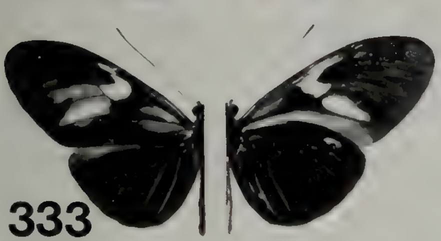

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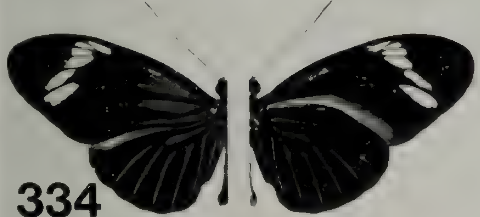

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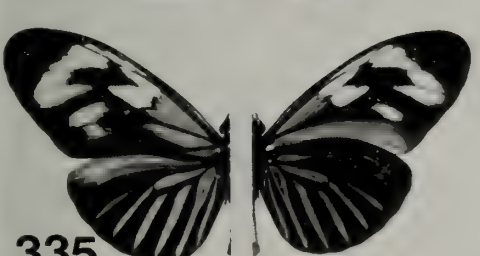

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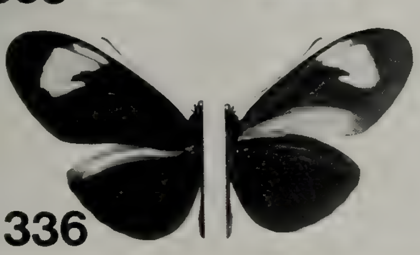

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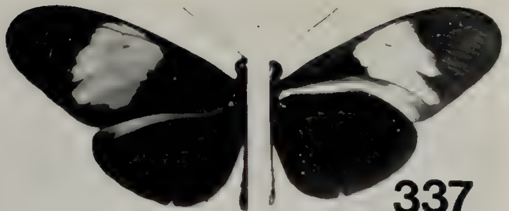

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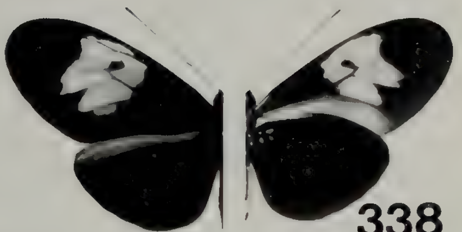

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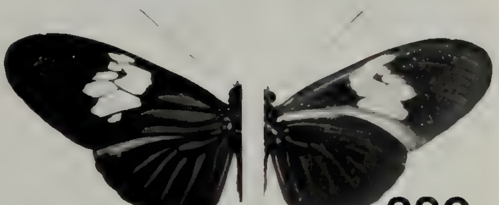

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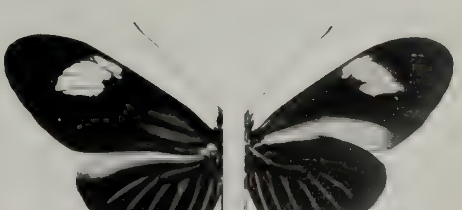

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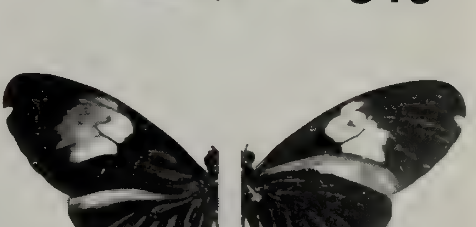
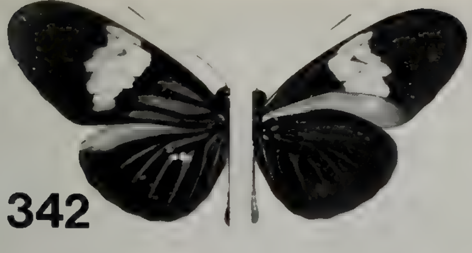


341

PLATE 34

Upper- and underside

Fig. 342. *Heliconius phyllis anactorie* form *henrici* Krüger, holotype ♂ (Carmen, Nord Bolivia).
Fig. 343. *H. phyllis* form *leonora* Krüger, holotype ♂ (Rio Grande, Bolivia).
Fig. 344. *H. phyllis kruegeri* Neustetter, holotype ♂ (Rio Grande, Bolivia).
Fig. 345. *H. phyllis anacreon* form *clelia* Neustetter, holotype ♂ (Bolivia).
Fig. 346. *H. phyllis kruegeri* from *anacreonides* Neustetter, holotype ♂ (Rio Grande, Bolivia).
Fig. 347. *H. anacreon* Grose-Smith & Kirby, syntype ♂ (Boliv.).
Fig. 348. *H. erato phyllis* form *diffluens* Riffarth, syntype ♂ (Peru).
Fig. 349. *Papilio phyllis* Fabricius, syntype ♂.
Fig. 350. *Heliconius erato phyllis* form *sperata* Riffarth, syntype ♂ (Cajon, Süd-Peru).
Fig. 351. *H. erato anacreon* form *anaitis* Riffarth, holotype ♀ (Prov. Sara, Süd Bolivia).
Fig. 352. *H. phyllidis* Grose-Smith & Kirby, syntype ♂ (Boliv.).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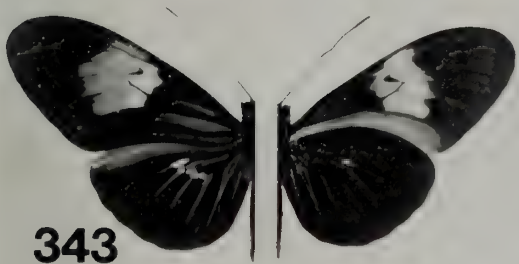
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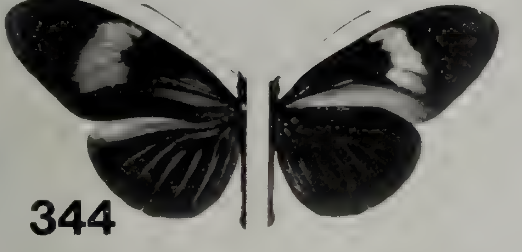
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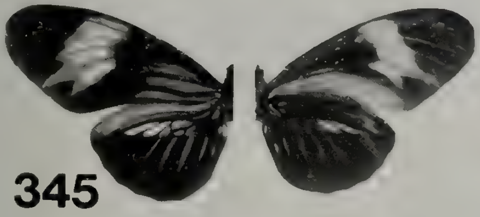
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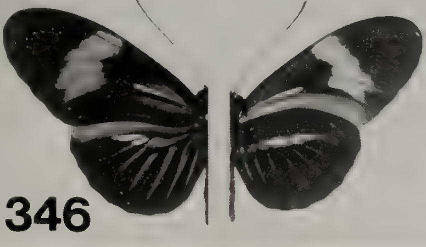
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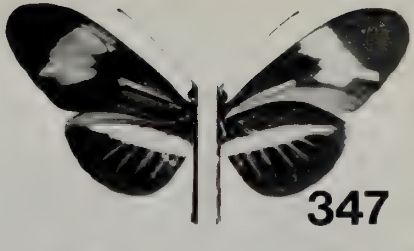
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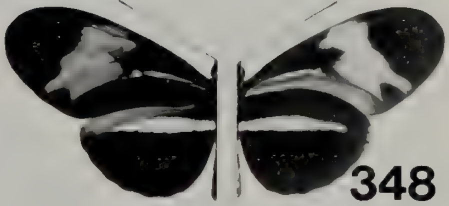
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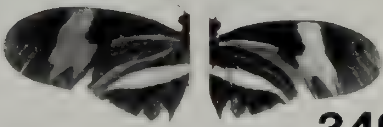
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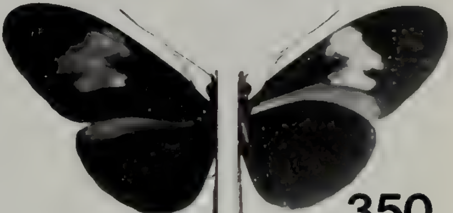
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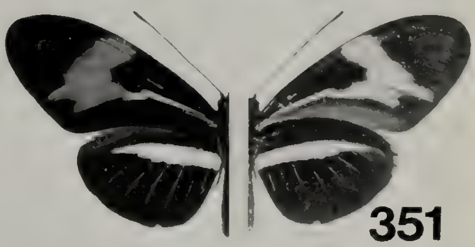
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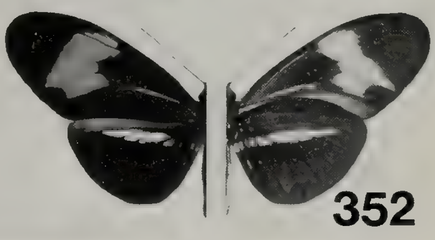
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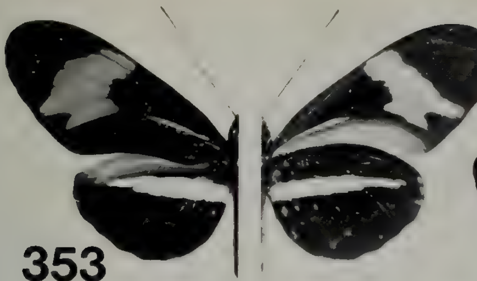
PLATE 35

Upper- and underside

FIG. 353. *Heliconius erato* ab. *artifex* Stichel, syntype ♂ (Brasilia, Espirito Santo).
FIG. 354. *H. octavia* Bates, syntype ♂ (Dueñas, Guatemala).
FIG. 355. *H. formosus* Bates, syntype ♂ (Lion Hill, Panama).
FIG. 356. *Heliconia gynaesia* Hewitson, holotype ♂.
FIG. 357. *H. longarena* Hewitson, syntype ♂ (N. Granada).
FIG. 358. *Heliconius sotericus* Salvin, lectotype ♂ (Guaymay, Ecuador).
FIG. 359. *H. telesiphe* ab. *nivea* Kaye, lectotype ♂ (Pérou).
FIG. 360. *Heliconia telesiphe* Doubleday, lectotype ♂ (Bolivia).
FIG. 361. *Heliconius montanus* Salvin, syntype ♂ (Orosi, Costa Rica).
FIG. 362. *H. clysonimus* form *flavopunctatus* Fassl, syntype ♀ (Rio Aguacatal, Columb.).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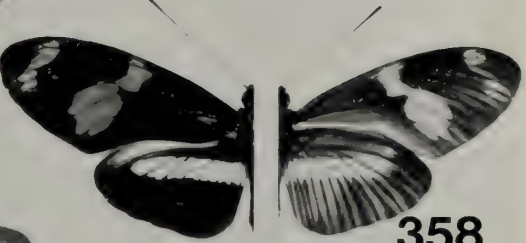
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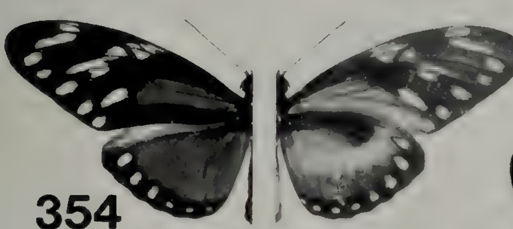
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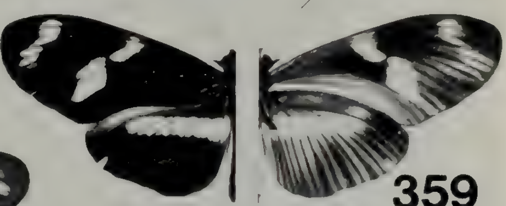
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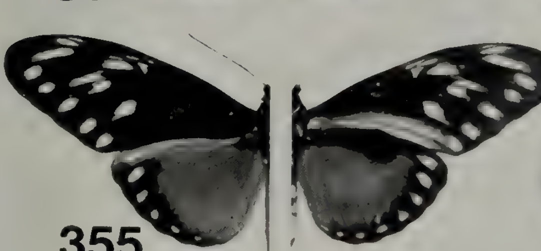
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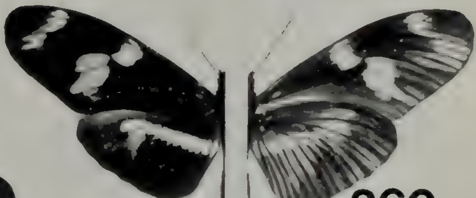
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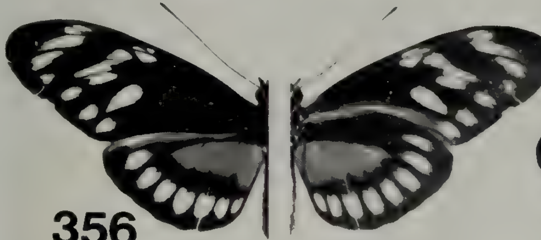
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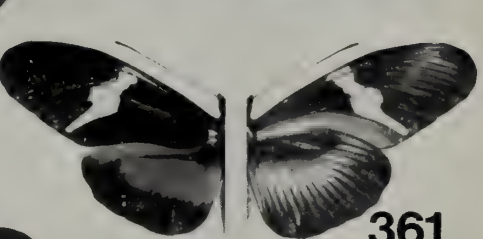
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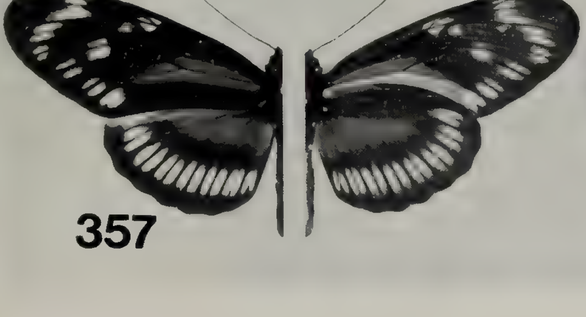
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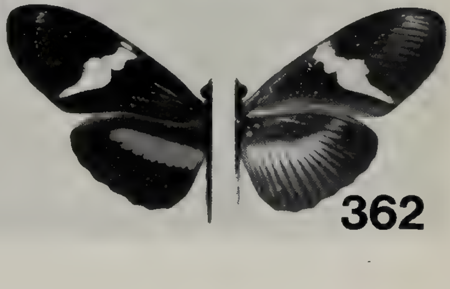
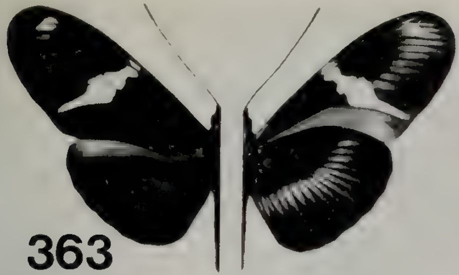

362

PLATE 36

Upper- and underside

FIG. 363. *Heliconius clysonimus apicalis* ab. *semirubra* Joicey & Kaye, syntype ♂ (Columbia, Rio Siato).
FIG. 364. *H. clysonimus fischeri* Fassl, holotype ♀ (Rio Aguacatal, Columb.).
FIG. 365. *Heliconia hygiana* Hewitson, syntype ♀ (Quito).
FIG. 366. *Heliconius charithonia punctata* Hall, syntype ♂ (St. Kitts, B.W.I.).
FIG. 367. *Eueides ricini insularis* Stichel, holotype ♂ (Trinidad, Belmont).
FIG. 368. *Heliconia automatia* Oberthür, holotype ♂ (Guyane Française, St. Laurent du Maroni).
FIG. 369. *Eueides egeriformis* Joicey & Kaye, syntype ♂ (St. Jean du Maroni).
FIG. 370. *Heliconia eueidina* Oberthür, syntype ♂ (Cayenne).
FIG. 371. *Heliconius demeter beebei* Turner, holotype ♂ (British Guiana, Essequibo R.).
FIG. 372. *Eueides eratosignis* Joicey & Talbot, syntype ♂.
FIG. 373. *Heliconius demeter turneri* Brown & Benson, holotype ♂ (Ypiranga).
FIG. 374. *H. veraepacis* Bates, syntype ♂ (Forest of N. Vera Paz).



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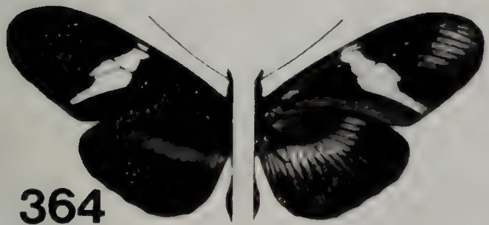

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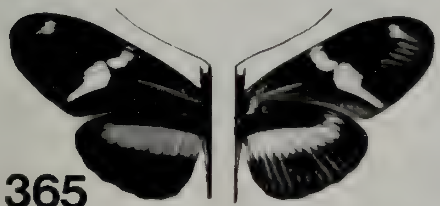

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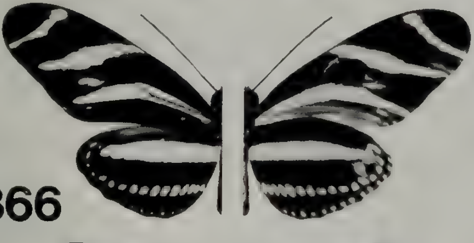

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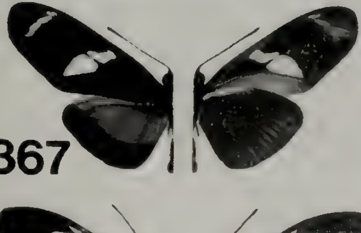

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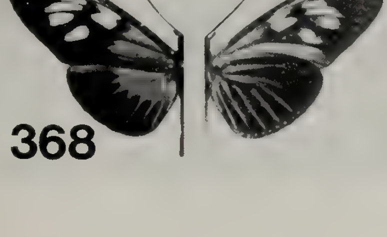

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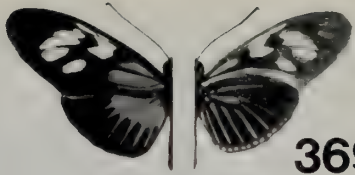

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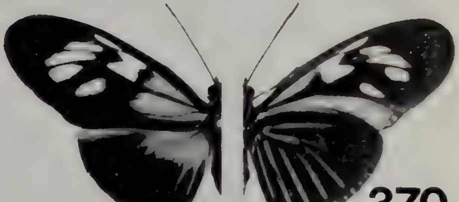

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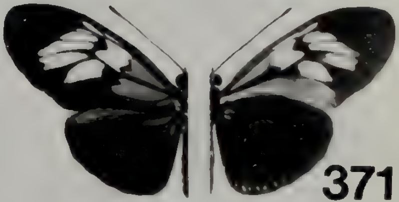

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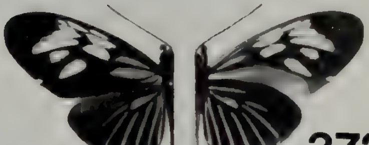

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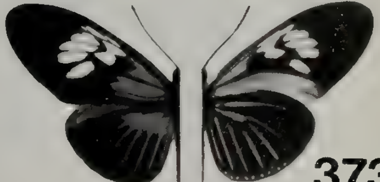

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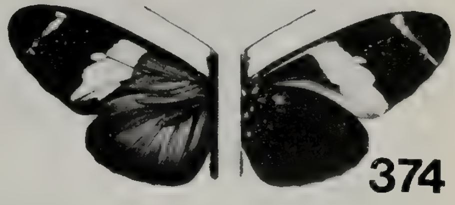

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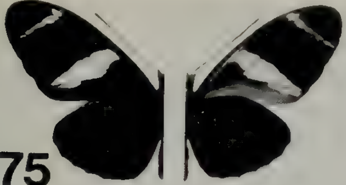
PLATE 37

Upper- and underside

FIG. 375. *Heliconius sara fulgidus* Stichel, syntype ♂ (Carillo, Costa Rica).
FIG. 376. *Heliconia theudela* Hewitson, syntype ♂ (Panama).
FIG. 377. *Heliconius magdalena* Bates, syntype ♂ (Bogota, Colombia).
FIG. 378. *H. sprucei* Bates, syntype ♂ (Chimborazo, Ecuador).
FIG. 379. *H. rhea* ab. *albinea* Riffarth, holotype ♀ (Surinam).
FIG. 380. *H. leucadia* Bates, holotype ♂ (S. Paulo, U. Amazons).
FIG. 381. *H. antiochus* ab. *alba* Riffarth, syntype ♂ (Amazonas sup.).
FIG. 382. *H. zobeide* Butler, syntype ♂ (Para).
FIG. 383. *H. sapho candidus* Brown, holotype ♂ (Ecuador).
FIG. 384. *H. congener aquilionaris* Brown, holotype ♂ (Medina, Ost Colombia).
FIG. 385. *Heliconia eleuchia* Hewitson, syntype ♀ (N. Granada).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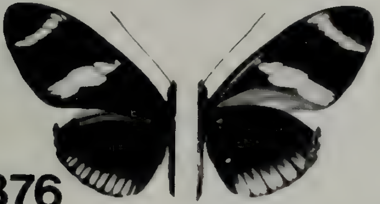
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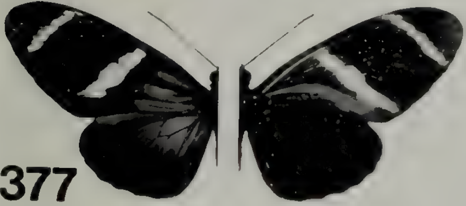
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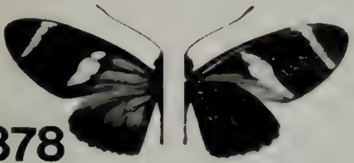
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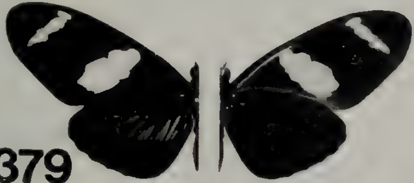
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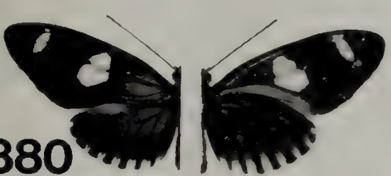
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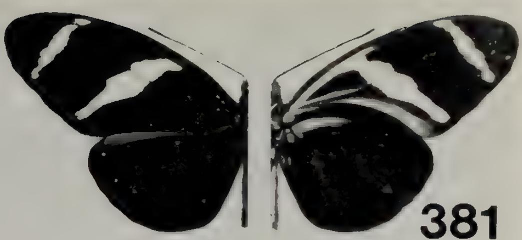
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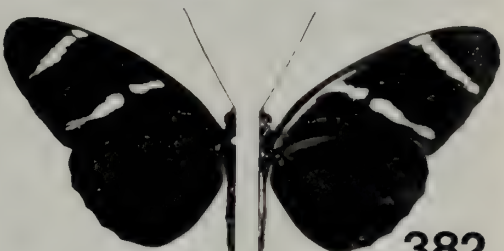
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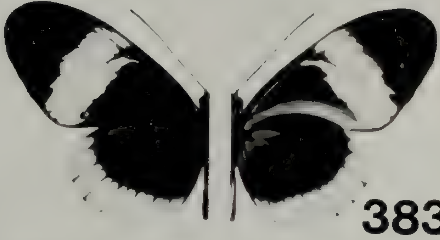
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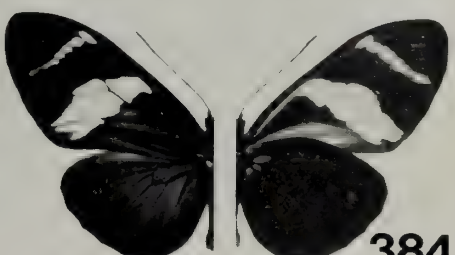
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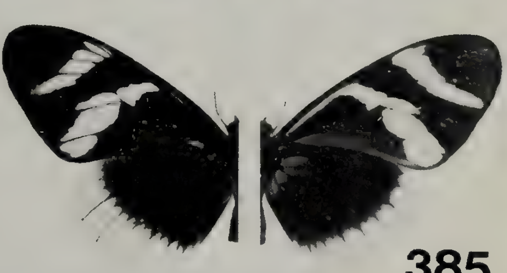
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PLATE 38

Upper- and underside

Fig. 386. *Heliconius sapho primularis* ab. *deflava* Joicey & Kaye, syntype ♂ (Paramba, Ecuador).

Fig. 387. *H. primularis* Butler, syntype ♂ (Guayaquil).

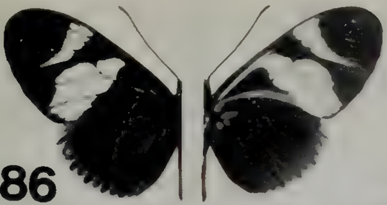
Fig. 388. *Heliconia ceres* Oberthür, syntype ♂ (Nouvelle Granade, Cauca).

Fig. 389. *Heliconius cydno flaveola* Joicey & Kaye, syntype ♂ (Venezuela, Mocotone).

Fig. 390. *H. aoede philipi* Brown, holotype ♂ (Salampioni, Bolivia).

Fig. 391. *H. clysonymus tabaconas* Brown, holotype ♂ (Charape, N. Peru).

Fig. 392. *H. melpomene timareta* ab. *virgata* Stichel, syntype ♂ (Santa Jnez, Ecuador).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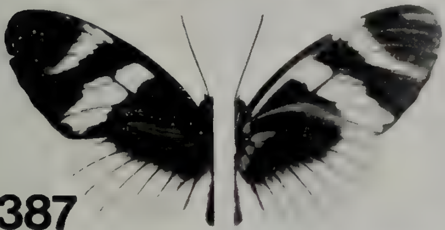
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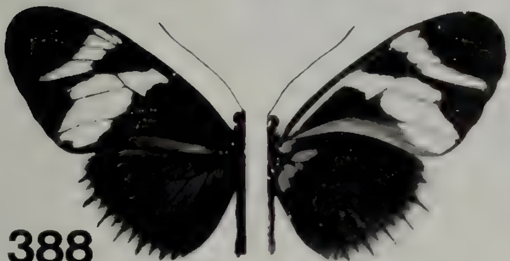
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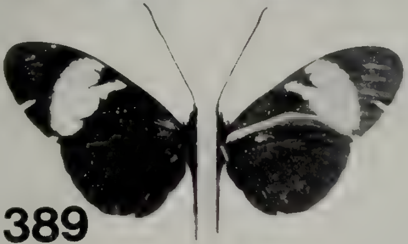
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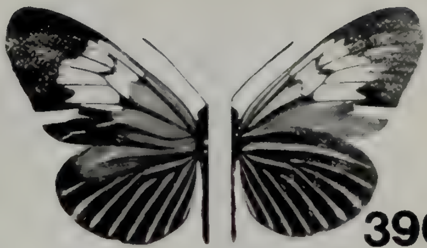
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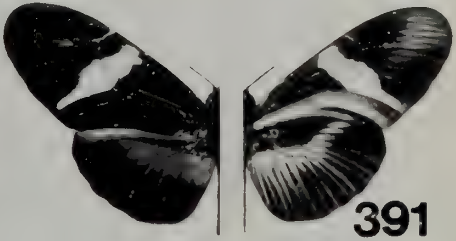
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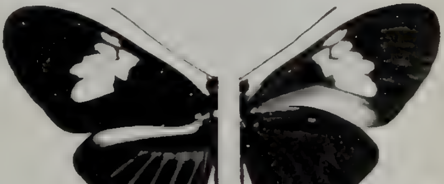
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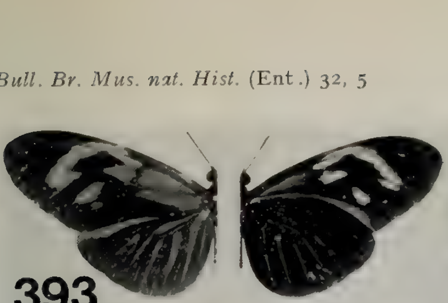
PLATE 39

Upper- and underside

Fig. 393. *Papilio andremona* Cramer, syntype ♂ (Surinam).
Fig. 394. *P. callycopis* Cramer, syntype ♂.
Fig. 395. *P. erythrea* Cramer, syntype ♂.
Fig. 396. *P. amathusia* Cramer, syntype ♂.
Fig. 397. *P. quirina* Cramer, syntype ♂.
Fig. 398. *P. quirina* Cramer, syntype ♀.
Fig. 399. *P. rhea* Cramer, syntype ♂ (Surinam).
Fig. 400. *P. pasithoe* Cramer, syntype ♂ (Surinam).
Fig. 401. *P. pasithoe* Cramer, syntype ♂.
Fig. 402. *P. pasithoe* Cramer, syntype ♂.
Fig. 403. *P. numata* Cramer, syntype ♂ (Surinam).
Fig. 404. *P. silvana* Stoll, syntype ♀.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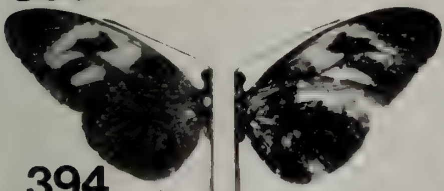
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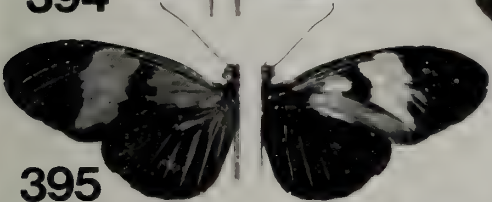
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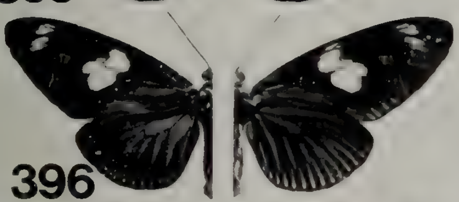
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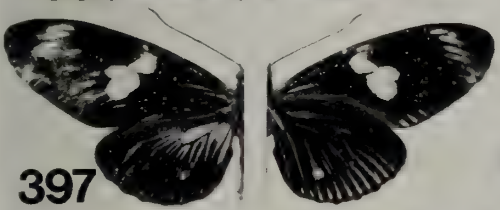
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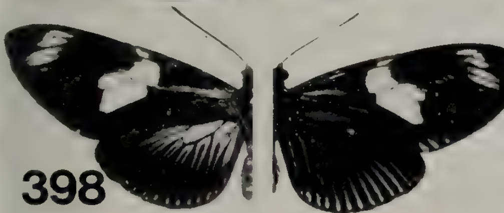
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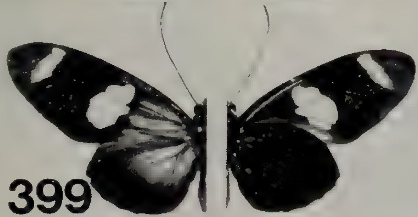
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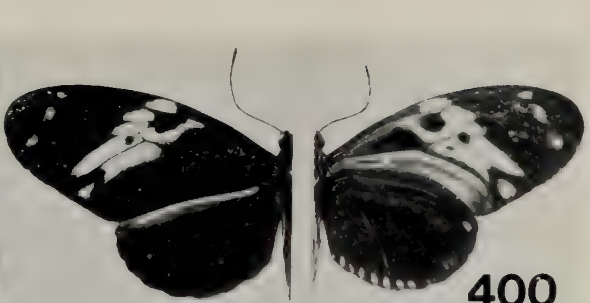
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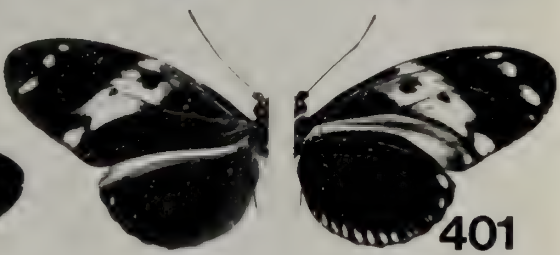
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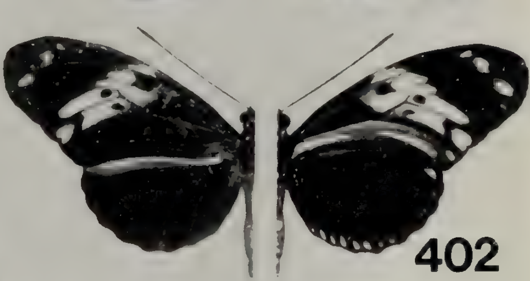
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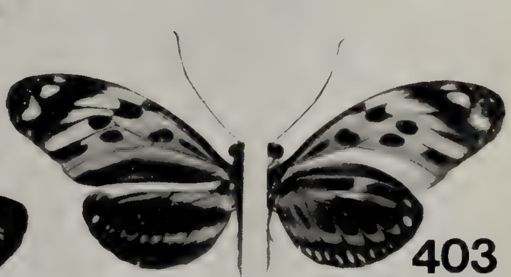
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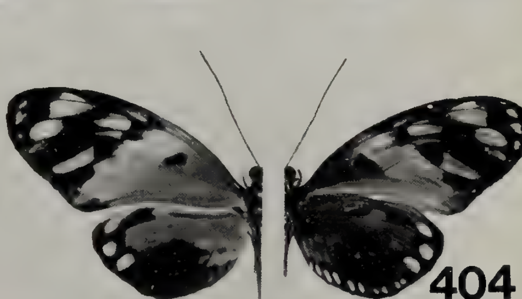
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A REVISION OF THE GENUS *PTYCHANDRA* (LEPIDOPTERA : NYMPHALIDAE)

H. J. BANKS, J. D. HOLLOWAY
AND
H. S. BARLOW

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
ENTOMOLOGY Vol. 32 No. 6
LONDON : 1976

A REVISION OF THE GENUS *PTYCHANDRA* (LEPIDOPTERA : NYMPHALIDAE)

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Pp. 215–252; 5 *Plates; 22 Text-figures*

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ENTOMOLOGY Vol. 32 No. 6
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SYNOPSIS

The genus *Ptychandra* (Lepidoptera: Nymphalidae, Satyrinae) is revised and a key to the six known species is given. *P. negrosensis* sp. n. and *P. lorquinii leytensis* subsp. n. are described. The distinctive male secondary sexual characters are described in detail. Biometric data are used to support the conclusions of qualitative taxonomic study, to place doubtful individuals and to discriminate a geographical race not separable by any single diagnostic character. The biogeographic and phylogenetic affinities of the genus and species are discussed.

INTRODUCTION

The genus *Ptychandra* Felder & Felder (Lepidoptera: Nymphalidae, Satyrinae) has long been in need of revision. The only works covering most of the genus are those by Fruhstorfer (1908; 1911) which are difficult to follow and often incorrect. The male brands and genitalia which are important diagnostic characters have not previously been illustrated. Capture by the authors (Barlow, Banks & Holloway, 1971) while on the 1965 Cambridge Expedition to Mt Kinabalu, Sabah, Malaysia, of a series of the Bornean species, *talboti*, provided the stimulus for this work. Hitherto, with the exception of the unique holotype of *talboti*, the genus was only known from the Philippines.

The material used in this revision was obtained from the British Museum (Natural History) (BMNH); the Hope Department of Oxford University (UM); the Senckenberg Museum, Frankfurt-am-Main (SMN); the Humboldt Museum, Berlin (MNHU);

the Carnegie Museum, Pittsburg (CM); the Smithsonian Institution, Washington (USNM); and the American Museum of Natural History, New York (AMNH). Additional invaluable material was obtained from the private collections of C. G. Treadaway and J. N. Jumalon whose *Ptychandra* were subsequently donated to the British Museum (Natural History). No *Ptychandra* were present in the Sabah Museum, Kota Kinabalu; the Raffles Museum, Singapore; or the Sarawak Museum, Kuching.

Venation and cell nomenclature follows that in *The Insects of Australia* (C.S.I.R.O., 1970), each cell being designated by the vein anterior to it.

ACKNOWLEDGEMENTS

We are deeply indebted to R. I. Vane-Wright and T. G. Howarth of the British Museum (Natural History) for much helpful advice and assistance in the early stages of the work and for criticism of the manuscript. H. Clench of the Carnegie Museum supplied information about the movements of the collector, Lorquin. J. N. Jumalon, University of San Carlos, Philippines and C. G. Treadaway gave us access to their private collections. H. Hayashi kindly sent us photographs of *P. talboti* specimens collected by a colleague on Mt Kinabalu in 1974. The collection of the recent Bornean specimens was made possible through the generosity of a number of funds and companies which supported the 1965 Cambridge Expedition to Mt Kinabalu. The statistical analyses of the biometric data were carried out by N. A. Campbell and A. Grassia of C.S.I.R.O., Division of Mathematics and Statistics. The photographs were taken by P. V. York (BMNH).

GENERIC DESCRIPTION AND FEATURES

PTYCHANDRA Felder & Felder

Ptychandra Felder & Felder, 1861 : 304; Staudinger, 1887 : 222; Röber, 1889 : 203; Reuter, 1897 : 122, 553; Fruhstorfer, 1908 : 221; 1911 : 329; Gaede, 1931 : 320; Miller, 1968 : 34, 49; Hemming, 1967 : 388; Lewis, 1973 : 276. Type-species: *Ptychandra lorquinii* Felder & Felder, by monotypy.

DESCRIPTION. ♂. *Facies*. Upperside iridescent blue-purple with small white or bluish markings subapically and antemarginally. Underside light to deep brown ground colour marbled with darker brown, wavy transverse lines in discal area, with additional silver lines in some species. Full series of submarginal ocelli on hindwing underside in cells Rs to $1A + 2A$; that in cell Rs often enlarged and inwardly displaced. Forewing underside with two to four submarginal ocelli in cells Rs to M_3. *Venation* (Text-fig. 1). Forewing cell approximately one-third length of costa. Vein M_3 colinear with lower discocellular vein. Median discocellular vein slightly angled at origin of M_2, almost straight between origins of M_2 and M_3, and meeting lower discocellular, being approximately at right angles. Origins of subcostal and cubital veins strongly swollen at base, anal vein somewhat less so. Hindwing cell closed, about half the length of the wing, with vein $Sc + R_1$ slightly inflated proximal to the humeral vein. Vein M_3 extended into a well formed tail with subsidiary lobes at terminations of CuA_1 and CuA_2 in some species. On hindwing, origins of CuA_1 and M_3 well separated. *Secondary sexual characters*. Forewing cubital branches displaced by a brand of mealy scales covered with a long black hair pencil placed between CuA_1 and M_3 (except *schadenbergi*) and a pouched hair pencil present basally between CuA_1 and CuA_2 (except *talboti*) running about one-third of length of wing in the interneural furrow. Hindwing hair pencil present in some species at origin of *Rs* overlying part of cell. *Body and appendages*. Eyes hairy. Palpi strongly haired on second segment with third segment approximately one-sixth length of second. Antennae about half length of costa with finely tapered club. Tibial spurs present. *Genitalia* (see Text-figs 2–14). Valvae sclerotized distally, usually with a three-lobed terminal section armed with flat sclerotized plates giving a heavily serrated tip. Exteriorly furnished with many narrow setae often as long as the breadth of the valva and interiorly possessing a few short stiff setae in the sclerotized zone. Tegumen and uncus smoothly tapered with the uncus often notched distally. Gnathos bifid, either smooth or with weakly sclerotized processes and plates on the dorsal surface distally. Posterior ends of gnathos curved upwards (except *talboti*). Aedeagus weakly sclerotized without cornuti.

♀. *Facies*. Upperside light brown with prominent white or off-white markings and broad, white, forewing subapical band. Underside with brown or whitish ground colour traversed

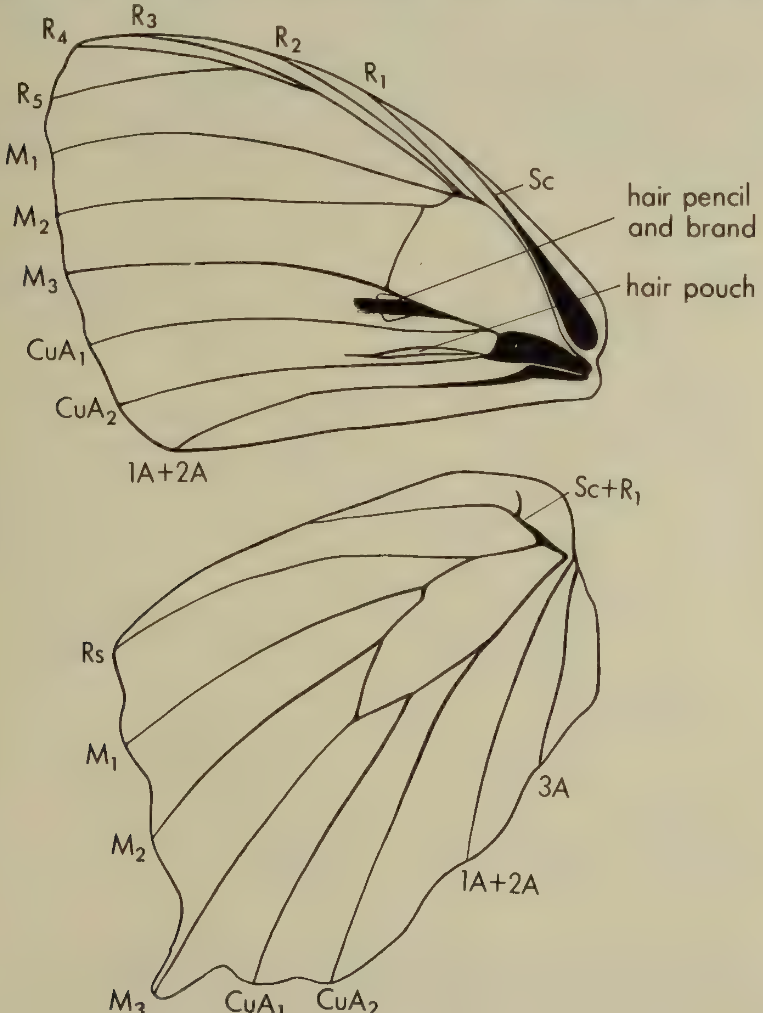


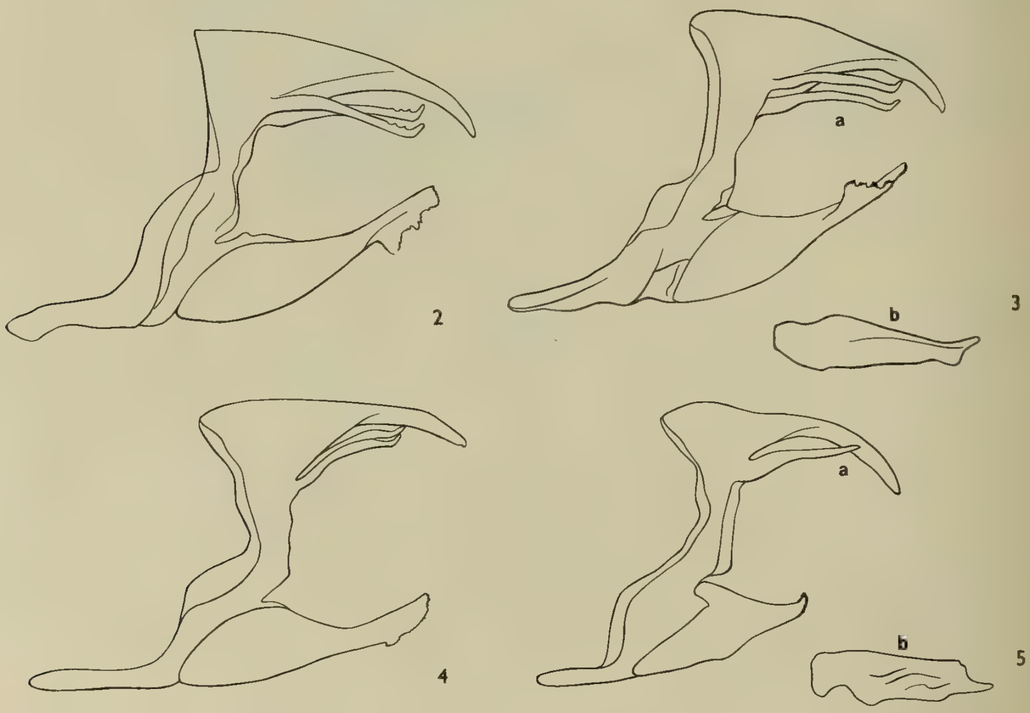
FIG. 1. Venation of *Ptychandra lorquinii lorquinii*.

by darker brown wavy lines in discal area. Submarginal ocelli similar to male but of increased size. *Venation.* Similar to male, with cubital branches displaced despite absence of brands or pouches. *Body and appendages.* Similar to male but antennae relatively shorter compared with forewing length. *Genitalia.* Outer margin of ovipositor lobes semicircular; posterior apophyses straight, about as long as radius of lobes. Bursa copulatrix equipped with two longitudinal rows of signa.

BIOLOGY AND HABITAT

The immature stages are undescribed.

The Philippine species are woodland and forest butterflies found from sea-level to about 700 metres (with a unique record of *lorquinii lorquinii* from almost 2000 metres). They are very much at home in the dappled light of glades and coppices in the forest, tending to avoid full, bright sunlight (Jumalon, in litt.). The males are often seen in numbers in small glades, settling on leaves in the shade and occasionally taking brief flights. Males have been observed to visit bird-droppings and overripe fruit and *negrosensis*, taken in hill rainforest with thick undergrowth of ferns and vines, was observed feeding from cut grass stems in the company of amathusiids and *Neptis* on an overcast day. In Luzon, *lorquinii* and *leucogyne* are



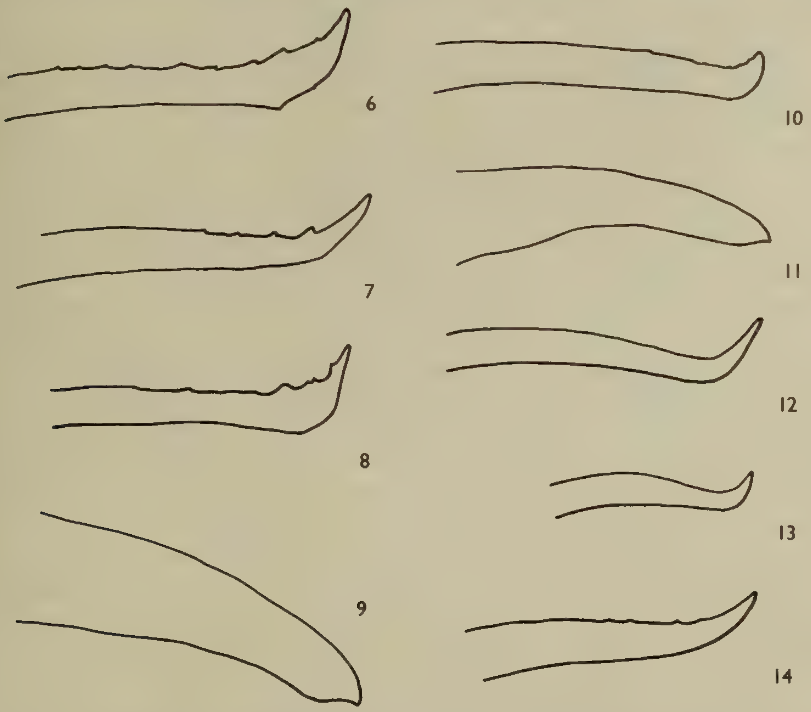
FIGS 2–5. Male genitalia of *Ptychandra* species. Left valve removed, aedeagus withdrawn and setation not shown. 2, *lorquinii lorquinii*; 3(a), *schadenbergi*; 3(b), *schadenbergi*, aedeagus; 4, *leucogyne*, ex Luzon; 5(a), *talboti*, ex Mt Kinabalu, Borneo; 5(b), *talboti*, aedeagus.

segregated ecologically to some extent, the former being more common in advanced secondary woodland and the latter predominating in mature forest.

In Borneo the Mt Kinabalu specimens of *talboti* were taken at about 2000 m close to primary forest along a road. The Trus Madi specimen was taken close to the summit in moss forest and the specimen of *talboti* from Mt Dulit was also captured in montane forest. This species too is active in overcast weather. The flight habits of *Ptychandra* species appear similar. A female *talboti* was at first mistaken for a riodinid of a genus such as *Zemeros*, which is found in a similar habitat and has similar flight characteristics and colouration. The particular specimen sat on leaves at the forest edge with wings half opened in the sun, making short brisk flights between periods of rest. The larger members of the genus resemble some *Lethe* species in flight, wing pattern, colouration and habitat. There is no record of crepuscular flight for *Ptychandra*, but from this resemblance to *Lethe* it appears likely to occur.

BIOGEOGRAPHY AND PHYLOGENY

The genus *Ptychandra* is of great interest as it is one of very few butterfly genera that has undergone considerable radiation within the Philippine island group



FIGS 6–14. Diagnostic details from male genitalia of *Ptychandra*. 6, gnathos of *lorquinii plateni*; 7, gnathos of *lorquinii bazilana*; 8, gnathos of *lorquinii lorquinii*; 9, tip of uncus, *mindorana*; 10, gnathos of *mindorana*; 11, tip of uncus, *schadenbergi*; 12, gnathos of *schadenbergi*; 13, gnathos of *leucogyne*; 14, gnathos of *lorquinii leytensis*.

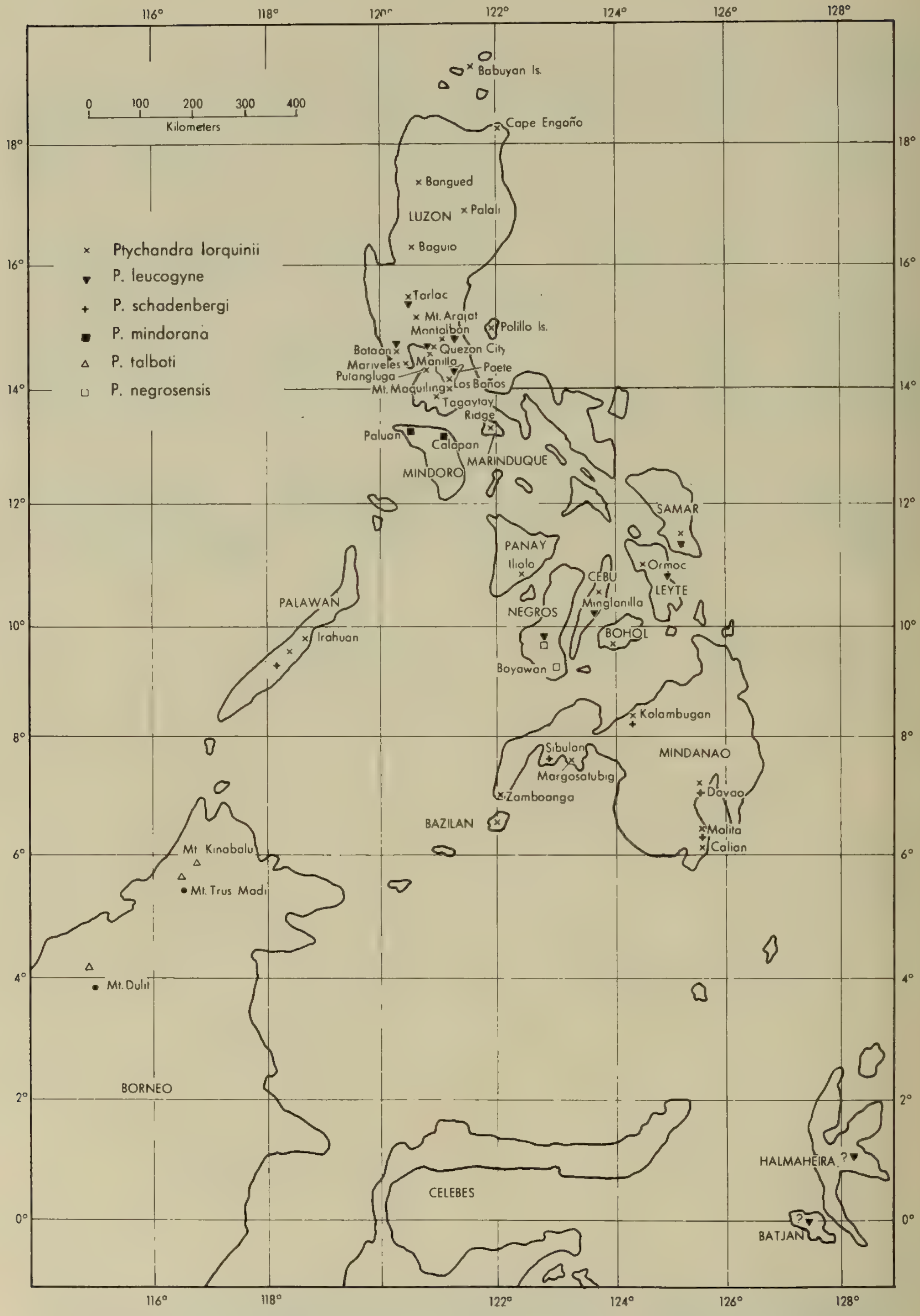

116°
118°
120°
122°
124°
126°
128°
18°
16°
14°
12°
10°
8°
6°
4°
2°
0°
0 100 200 300 400
Kilometers
× Ptychandra lorquinii
▼ P. leucogyne
+ P. schadenbergi
■ P. mindorana
△ P. talboti
□ P. negrosensis
Babuyan Is.
Cape Engaño
Bangued
LUZON
Palali
Baguio
Tarlac
Mt. Arajat
Montalban
Polillo Is.
Bataan
Quezon City
Mariveles
Manilla
Paete
Pulangluga
Mt. Maquiling
Los Baños
Tagaytay Ridge
Paluan
Calapan
MARINDUQUE
MINDORO
SAMAR
PANAY
Iloilo
CEBU
Ormoc
LEYTE
Minglanilla
NEGROS
PALAWAN
Irahuan
BOHOL
Boyawan
Kolambugan
Sibulan
MINDANAO
Margosatubig
Zamboanga
Davao
BAZILAN
Malita
Calian
Mt. Kinabolu
Mt. Trus Madi
Mt. Dulit
BORNEO
CELEBES
HALMAHEIRA
BATJAN
?

FIG. 15. Map of Philippines, Borneo and North Moluccas showing distribution records for *Ptychandra* species.

with little radiation elsewhere. Most of the Philippine butterfly fauna has been derived from mainland Asia and areas on the Sunda Shelf, especially Borneo (Holloway & Jardine, 1968; Holloway, 1973). *Ptychandra* is a homogeneous genus with no close relatives and may therefore be considered monophyletic. Speculation on its radiation and speciation is limited by the paucity of material and patchiness of collecting. Some of the locality recording may be in error, such as the record of *leucogyne* from the North Moluccas (Halmaheira in the original description and Batjan by Semper, 1889 : 60). The recent discovery of *negrosensis* suggests that other islands may yet yield further species.

The Bornean species is morphologically very different from those in the Philippines (size, genitalia and secondary sexual characters) and could be regarded as an early offshoot within the genus. Of the Philippine species four are allopatric and the fifth, *lorquinii*, overlaps with *leucogyne* in Luzon and the central Philippines and with *schadenbergi* in the south (Text-fig. 15). Holloway (1973) suggested a general pattern of two phases of radiation with an intervening period of isolation and fragmentation, caused by changes in sea-level and therefore land area in the Pleistocene, to be responsible for the majority of present day butterfly distribution patterns in the East Indies. The distribution of *Ptychandra* may be open to explanation along similar lines. The allopatric distribution of the Philippine species apart from *lorquinii* suggests the fragmentation of the range of a widespread common ancestor, followed by divergence of the fragments. *P. mindorana*, *negrosensis* and *schadenbergi* are probably still restricted to their original sites of isolation. *P. leucogyne* may have been isolated in the central Philippines and possibly the southern peninsula of Luzon, and *lorquinii* in Luzon. Given such a pattern of isolation, then the present distribution of *lorquinii* and extension north of *leucogyne* in Luzon would have resulted from a second spread phase. This is the simplest explanation of current distribution patterns within the genus. The areas of isolation correspond well with the distribution of land in the Philippines at periods of low sea-level as indicated by Darlington (1957), and the barriers indicated would no doubt have been intensified during periods of high sea-level.

If more weight is placed on the secondary sexual differences of the males, especially those of the forewing hair pencil and associated scale patches, then an alternative hypothesis involving three spread phases could be considered. (1) spread of a generic ancestor over the Philippines and northern Borneo with isolation subsequently in three areas, leading to evolution of brand type (a) (see p. 234 for discussion of brand types) in Borneo, type (b) in the northern Philippines and type (c) in the south; (2) spread of the type (b) ancestor to Mindoro leading to the separation of *mindorana* and *leucogyne*, and spread of the type (c) ancestor north through the Philippines leading to the isolation and development of *lorquinii* on Luzon, *negrosensis* on Negros and *schadenbergi* (where the brand has been lost) on Mindanao; (3) spread of *lorquinii* south to Mindanao and *leucogyne* into the central Philippines. Further collecting in the central Philippines and observations of ecological differences between the species would help to clarify the picture.

The subspecies of *lorquinii*, if one includes specimens from Samar and Bohol with *leytensis* (which they resemble most closely), correspond well with Semper's

(1882) division of the Philippines into biogeographic provinces. The three males of *lorquinii* from Palawan are referable to *l. plateni* or *l. bazilana* rather than *l. lorquinii* and the species is not recorded from Mindoro. The Palawan form must have spread to Palawan via the Sulu Archipelago and north-east Borneo from Mindanao. The distribution of *Eurema alitha* (Felder), widespread in the Philippines and Sulawesi, extending down the Sulu Archipelago to north-east Borneo (Holloway, 1973), suggests that such spread would be possible.

The ecological differences between *lorquinii* and *leucogyne* have already been mentioned and it is of interest that *lorquinii*, more characteristic of secondary growth, has proved the more dispersive, following the general pattern of greater mobility in secondary growth species indicated by Corbet (1941).

The possibility of the occurrence of character displacement in *lorquinii plateni* and *schadenbergi* is discussed in the biometric section.

GENERIC AFFINITIES

The genus is of interest as it has proved difficult to place satisfactorily in the higher classification of the Satyrinae. Although usually regarded as an aberrant member of the *Lethe* group (Felder & Felder, 1861; Röber, 1888; Miller, 1968) the genus has characters linking it with other tribes. Miller (1968) suggested that the Melanitini gave rise to the Elymniinae and thus Lethini through steps resembling *Ptychandra* amongst others. *Ptychandra* has the origins of the hindwing veins CuA_1 and M_3 well separated. They are usually connate in the Elymniinae and particularly the Lethini. However, as noted by Fruhstorfer (1908; 1911), many of the characters of *Ptychandra* are associated with the *Mycalesis* group rather than *Lethe*. In particular the prominently swollen bases of the forewing subcostal and cubital veins with the less prominent inflation of the anal vein base (Text-fig. 1) and the secondary male sexual characters are commonly found in the Mycalesini but not Lethini. There are structures very similar to the various brands, hair pouches and hair pencils of *Ptychandra* species found in representatives of *Mycalesis* and *Orsotriaena*. The location of these characters is unusual and is also *Mycalesis*-like rather than of the Lethini. The hindwing hair pencil at origin of *Rs* is also found in *Mandarinia* (Miller, 1968) and many *Mycalesis* (e.g. *M. perseus*) but not *Lethe* though several of that genus, e.g. *Lethe minerva* F., have a hindwing hair pencil arising just outside the cell with small modified scales beneath it. Reuter (1897) places *Ptychandra* closer to *Neorina* than *Lethe* but within his Lethidi on the grounds of the morphology of the palpi.

Many features are consistent with a close relationship to the genus *Lethe*. The sexes are strikingly dimorphic with the female facies similar to species such as *Lethe europa* F. The wing shape with the slightly falcate forewing and prominent tailing at M_3 in the hindwing is lethine. Except as noted above, and where the secondary sexual wing characters cause displacement, the venation resembles *Lethe*, with the characteristic convexity and relative shortness of the forewing cell. This cell is extremely short in both male and female *Ptychandra*. As in *Lethe* tibial spurs are present and the female foreleg is pentamerous with spines on the first four subsegments (Miller, 1968).

MULTIVARIATE BIOMETRIC STUDY

(written in conjunction with N. A. Campbell,
C.S.I.R.O. Division of Mathematics and Statistics, Perth, Australia)

The taxa in this study were previously defined on the basis of their differences in qualitative (discontinuous) characters, or on their locality of capture. The males of the *lorquinii* subspecies from Mindanao, Bazilan and Palawan are not readily separable from one another using qualitative (non-metric) characters. The separation of male *lorquinii lorquinii* from *leucogyne* is also difficult.

On inspection there appeared to be a number of distinctive parametric (or quantitative) characters related to the shape, structure and ornamentation of the wing which are possessed by the various taxa. A multivariate approach is adopted in this section to clarify the nature of the morphometric divergence in the wing characters between the taxa.

Genetic divergence between taxa may be reflected in changes in the shape,

TABLE 1

Biometric characters and ratios used for statistical analyses

Character No.	Character
1	Forewing length.
2	Forewing breadth. This is taken from the anal angle to the tangent to the costa, crossing the line from apex to origin of cubitus and radius at right angles.
3	Hindwing length, taken from the inner angle of the cell to the maximum extent of the wing close to vein CuA_1, not to the end of the tail at vein M_3.
4	Hindwing breadth, taken from termination of vein *Rs* to the maximum extent of the wing on the inner margin close to termination of $1A + 2A$.
5	The calculated ratio of the forewing breadth to length. This gives an index of relative narrowness of the wing.
6	The calculated ratio of the hindwing breadth to length. This was designed to show the interspecific variation in hindwing shape.
7	The perpendicular distance from the tip of the tail at vein M_3, hindwing, to the line joining the maxium indentation in spaces M_2 and M_3.
8	Length of forewing lower discocellular vein.
9	Length of forewing lower discocellular vein proximal to the origin of vein CuA_1.
10	Maximum length of hindwing cell.
11	Distance of proximal displacement of centre of ocellus in forewing spaces M_3 (usually white-pupilled) from a line running through centres of ocelli in space M_1 and M_2. Distal displacements are recorded as negative values.
12	Distal maximum width of outer yellow ring around ocellus in hindwing space *Rs*.
13	Length of antenna.
14	Maximum length of external hair pencil in space M_3 overlying brand.

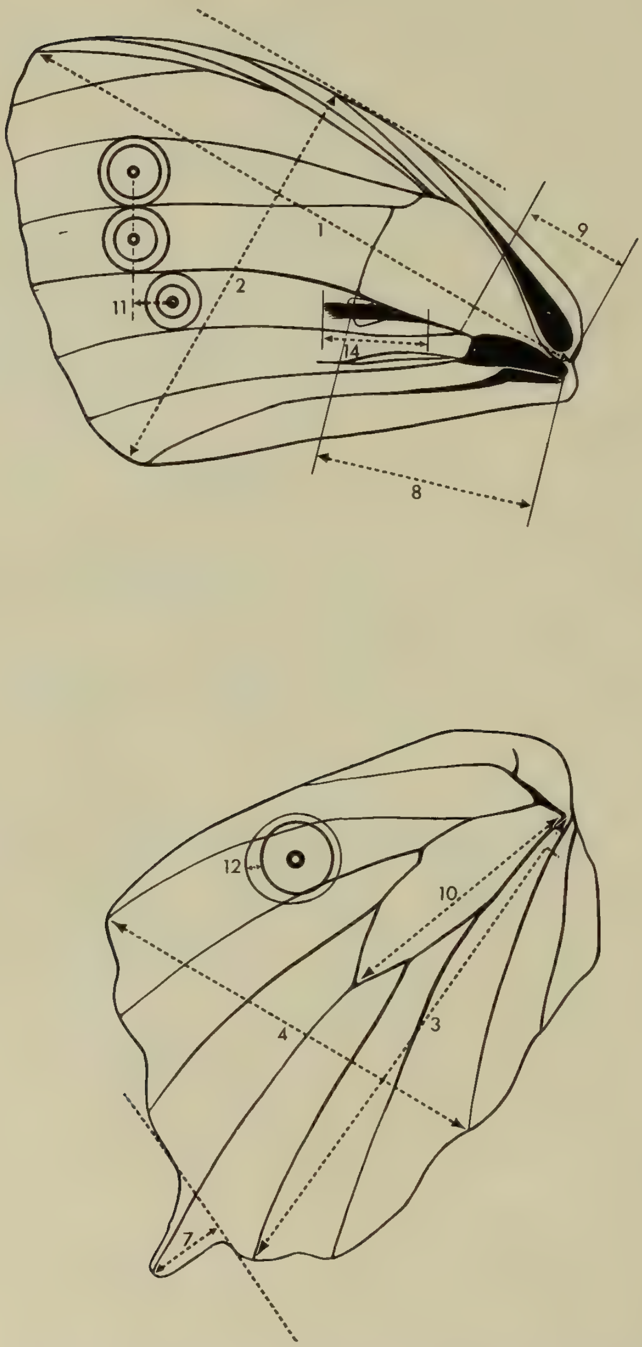


FIG. 16. Position of measurements taken for biometric study (see Table 1 for additional description) superimposed on venation of *Ptychandra lorquinii lorquinii*.

structure and ornamentation of the wing. A multivariate study of the variation and covariation between characters is effective for elucidating subtle changes in shape and ornamentation. A small change in the ratio of two highly correlated characters between taxa provides a simple means of identifying the taxa; a multivariate approach (Blackith & Reyment, 1971) utilizing canonical variates potentially provides an even more effective means of separating and identifying taxa. Suites of correlated characters exhibiting subtle changes in their relative proportions between taxa can be combined to provide a final mathematical expression for identification.

In order to study the divergence between the taxa, and particularly the problems discussed above, a series of biometric characters were measured as detailed in Table 1 and shown, where appropriate, in Text-fig. 16. Characters 1–4 were taken with a travelling microscope and characters 7–14 were measured with a microscope fitted with a calibrated eyepiece. All characters except 13 and 14 refer to wing shape, structure and ornamentation.

The taxa considered in this study are given in Table 2, detailing numbers of individuals within the taxa for which a complete data series was available. The fragility of the specimens, most of which were collected more than 60 years ago, resulting in absence of tails or antennae, restricted complete data on some specimens, while scarcity (rarity) of collected individuals for other taxa restricted their numbers. The extensive series of *leucogyne* and *lorquinii leytensis* were obtained after completion of the biometric observations.

The multivariate approach adopted to study the divergence between the taxa

TABLE 2

Symbols used and number of individuals measured for taxa studied biometrically.

	Symbols for text-figs 17-22		No. of complete specimens measured	
	♂	♀	♂	♀
P. leucogyne	▽	▼	4	4
P. lorquinii bazilana	|	⦶	5	3
P. lorquinii leytensis	\	⦸	1	2
P. lorquinii lorquinii[a]	×	⊗	10	6
P. lorquinii plateni[a]	—	⊖	17	10
P. lorquinii ex Palawan	/	n.a.	3	0
P. mindorana	□	■	4	4
P. negrosensis	◇	◆	1	1
P. schadenbergi[a]		⊕	17[b]	6
P. talboti	△	▲	4	1

a. taxa used for estimation of covariance matrices

b. males without external hair pencil

n.a. not applicable

TABLE 3

Canonical variate scores for *Ptychandra*, both sexes, all taxa, using the 8 significant characters.

Character[a] No.	Character	CV I	CV II	CV III	CV IV
1	Forewing length	·008[b] (—0·85)[c]	—·076 (·845)	—·042 (·468)	—·078 (—·868)
2	Forewing breadth	·048 (·412)	—·043 (—·364)	·059 (·504)	·041 (·348)
3	Hindwing length	·001 (·013)	·032 (·339)	—·018 (—·196)	·049 (·522)
8	Forewing cell length	—·054 (—·447)	—·142 (—1·172)	·053 (·440)	·129 (1·061)
9	Cell length to CuA_1	·348 (1·498)	·022 (·093)	—·039 (·166)	—·027 (—·118)
10	Hingwing cell length	—·103 (—·684)	·098 (·654)	·014 (·095)	—·072 (—·479)
11	Ocellus displacement	—·004 (—·012)	—·203 (—·640)	·110 (·343)	—·217 (—·677)
12	Yellow ring width	—·042 (—·047)	—·008 (—·648)	—·574 (—·648)	—·492 (—·555)
	Canonical root	39·3	13·5	2·2	1·2
	Canonical root derived from all characters	41·4	15·4	2·5	1·4

(a) See Table 1
(b) Canonical variate score (for $m \times 10^{-4}$)
(c) Canonical variate score normalized to unit variance.

primarily utilizes canonical variates (cf. Blackith & Reyment, 1971). For many of the taxa there are too few specimens to define adequately the character means and covariance (or correlation) structure. Therefore it is not possible to examine formally if, as is assumed in a canonical variates approach, the character variances and correlations between characters are similar from taxon to taxon. Hence the approach adopted in this study is to examine the canonical variates for their taxonomic significance, as well as their apparent statistical significance. Canonical variates that do not provide useful taxonomic separation are not considered.

A multivariate approach will only be of taxonomic value if the robustness of the results can be established. To this end, the covariance structure was determined from all the taxa, and from taxa with the largest numbers of specimens, namely *lorquinii plateni*, *l. lorquinii* and *schadenbergi* (males and females). Canonical analyses were determined with all taxa included, but with the covariance structure estimated by the two approaches detailed above. Alternatively, only the three taxa above were analysed; the remaining taxa were located by their canonical variate scores. Similarities in the relative affinities of the taxa, and the degree of separation between taxa, are taken to imply robustness of the results obtained. The results quoted here were produced by considering all taxa with the covariance structure estimated from the three longer series, since the three approaches gave comparable results with similar major groupings.

Characters which do not contribute significantly to the discrimination between

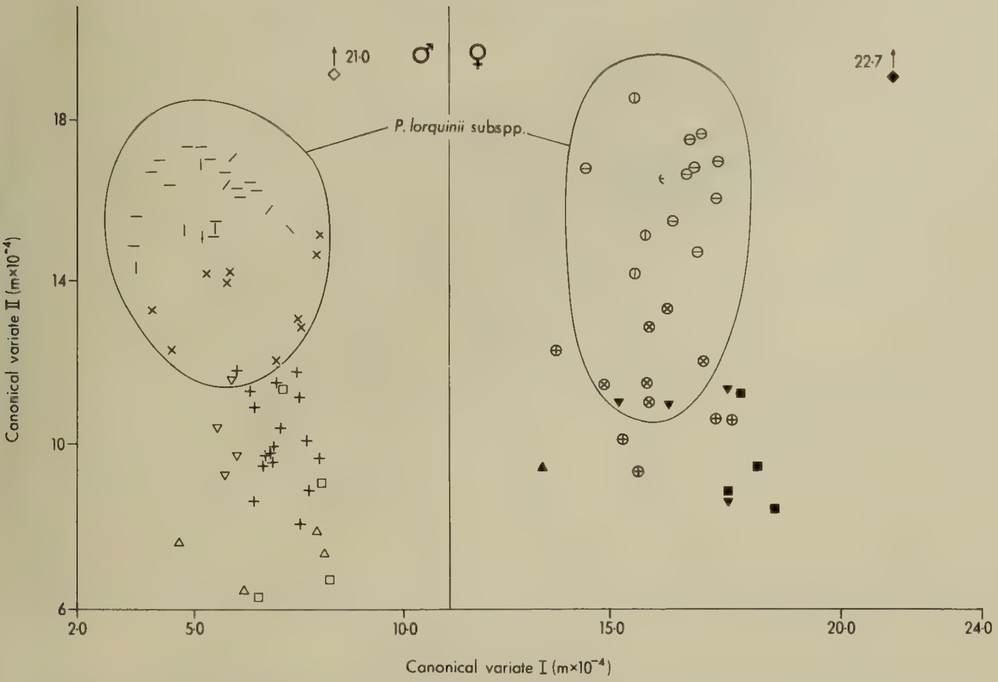


FIG. 17. Biometric study. First and second canonical variate scores for all taxa.

the taxa can be eliminated; these will generally be characters with small standardized canonical variate coefficients (i.e. the canonical variate coefficients multiplied by their respective pooled standard deviations). The effect of eliminating characters can be studied by observing the effect on the canonical root; little change means little loss of discrimination.

An analysis of all taxa showed that only eight of the eleven characters contributed to the discrimination; further elimination of characters reduced discrimination between the taxa. The canonical variates and canonical roots (from the analysis with the covariance matrix estimated from the three taxa) for eight characters are given in Table 3. The canonical roots for the analysis with all characters included are also given for comparison.

Individual scores for each taxon for the first two canonical variates are shown in Text-fig. 17. The first canonical variate reflects pronounced sexual dimorphism within the genus; this largely results from a contrast of character 9, the length of vein CuA_1, relative to character 8. The length of CuA_1 is strongly affected by the position of the brand in the male.

The second canonical variate shows almost complete separation of the *lorquinii* subspecies from the rest of the genus. This separation results from a contrast between character 8, a measure of the forewing cell length, relative to the length

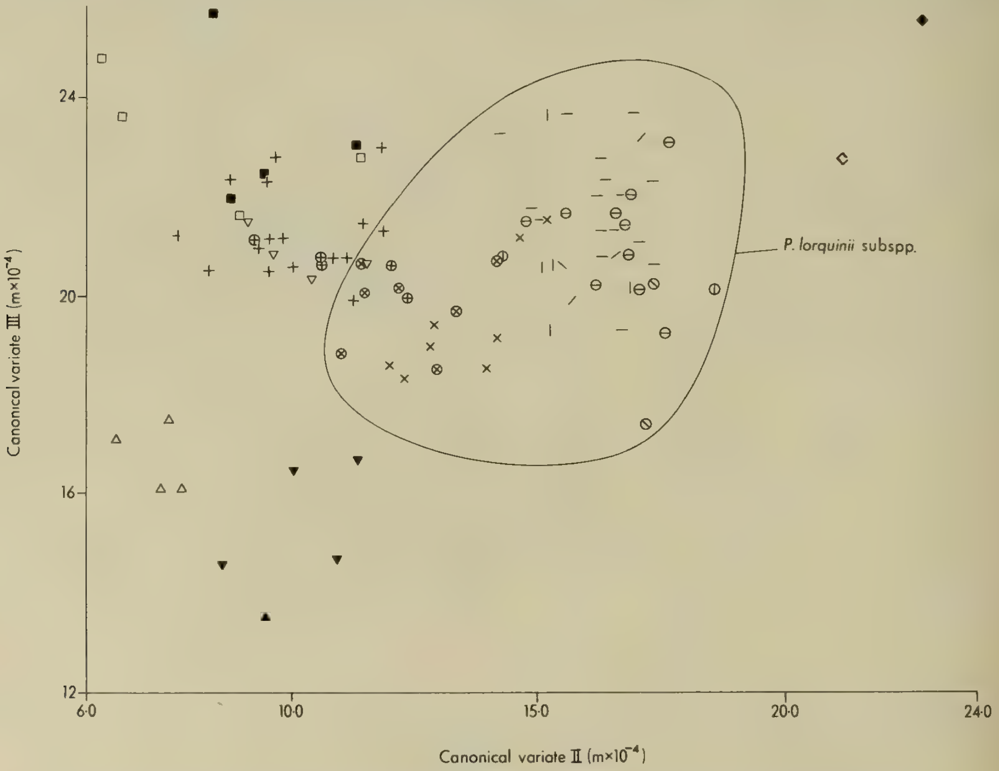


FIG. 18. Biometric study. Second and third canonical variate scores for all taxa.

of the hindwing cell and forewing. Ocellus displacement, character 11, is also important. *P. leucogyne* and *lorquinii lorquinii* males are separated on this variate. The third canonical variate (Text-fig. 18) discriminates between *talboti* and the other taxa.

The fourth canonical variate, when considered with the second (Text-fig. 19) achieves a remarkable clustering of the males and females of the individual taxa in this strongly dimorphic genus, confirming the correct pairing of the sexes. (The females of *leucogyne* were incorrectly taken to be the females of *schadenbergi* by Semper (1886). These two species are insufficiently distinguished to give proof of this error.)

In the above analysis, the subspecific differences between the putative Palawan representatives of *lorquinii* and those from the other islands are masked because of the larger differences between *lorquinii* and the other species. A canonical analysis of the males of *lorquinii* from Luzon, Palawan, Mindanao and Bazilan (with the

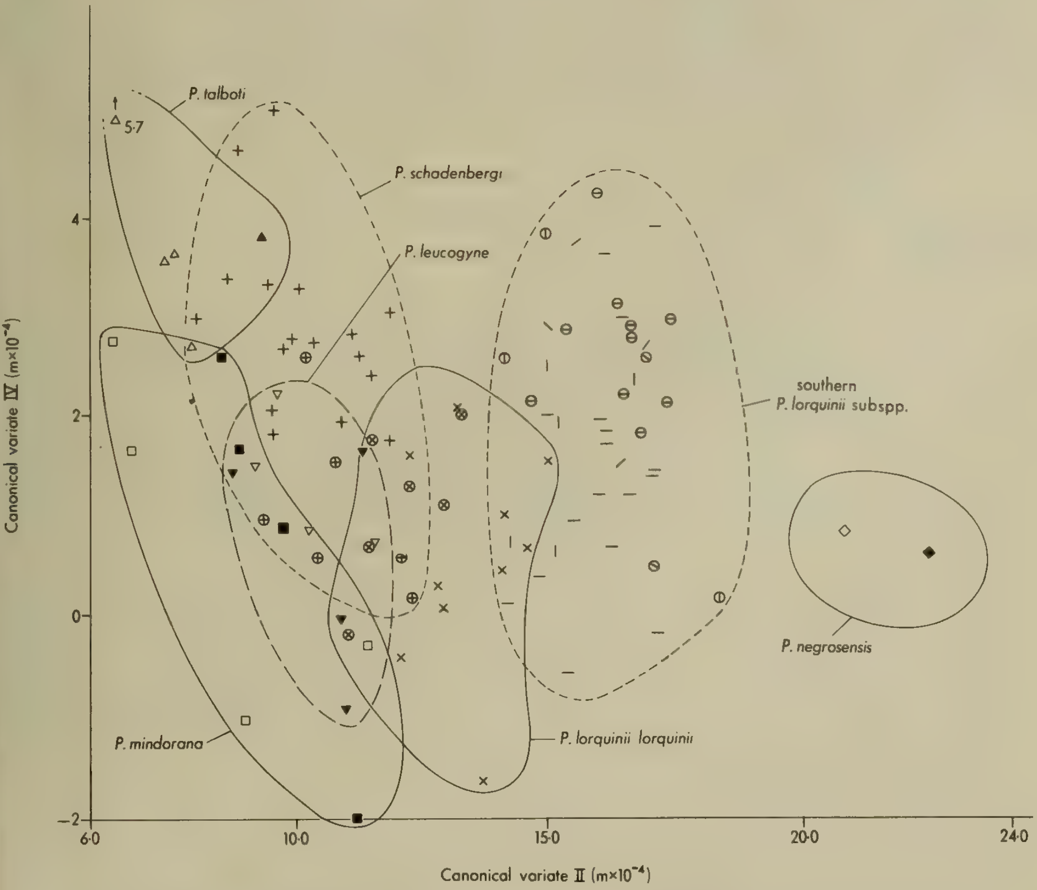


FIG. 19. Biometric study. Second and fourth canonical variate scores for all taxa.

covariance structure estimated, as before, from the larger samples) was carried out. The results were again robust with respect to the approaches detailed above. The canonical variates and canonical roots are given in Table 4, while the canonical variate scores for all specimens for the first and second canonical variates are given in Text-fig. 22. The first canonical variate separates the Luzon representative (*l. lorquinii*) from the southern races, and to a lesser degree *l. bazilana* from *l. plateni*.

TABLE 4

Canonical variate scores for *P. lorquinii* subspecies (males only) using 9 characters.

Character(a) No.	Character	CV I		CV II	
1	Forewing length	·050(b)	(·770)(c)	−·069	(−1·063)
2	Forewing breadth	−·007	(−·083)	·083	(·986)
3	Hindwing length	·012	(·177)	·070	(1·041)
4	Hindwing breadth	−·010	(−·148)	−·077	(−1·082)
8	Forewing cell length	·016	(·187)	·022	(·247)
9	Cell length to CuA_1	−·113	(−·677)	·127	(·762)
10	Hindwing cell length	·058	(·538)	−·047	(−·437)
11	Ocellus displacement	−·113	(−·494)	−·140	(−·610)
12	Yellow ring width	−·194	(−·305)	−·210	(−·330)
	Canonical root	1·71		0·23$^{\mathrm{NS}}$	
	Canonical root from all characters	1·79		0·25	

(a) See Table 1
(b) Canonical variate score (for m × 10^{-4})
(c) Canonical variate score normalised for unit variance

The second canonical variate (with the first) tends to separate the Palawan specimens from those of Bazilan and Mindanao. Analyses of the three taxa, with the covariance structure estimated by the approaches given above and from *lorquinii* subspecies only, all show some overlap of *lorquinii bazilana* and *l. plateni*, and separation of the individuals from Palawan and the other localities. While this separation may sometimes be inadequate for confident identification, it does indicate the likely taxonomic distinctness of the Palawan race from *lorquinii plateni* and *l. bazilana*.

It is of interest to note that only the first canonical root is statistically significant. Clearly, there is marked overlap of the taxa along the second canonical variate; the means for *l. lorquinii*, *l. bazilana* and *l. plateni* are virtually coincident along this variate. And yet it is the second canonical variate which tends to separate the Palawan specimens from *l. plateni* and to a lesser degree *l. bazilana*. Hence both the taxonomic (or biological) and statistical significance of canonical variates should be examined in morphometric taxonomic studies.

No information is available on ecological differences between *lorquinii* and *schadenbergi* flying together in Mindanao but, given the sort of evolutionary history of the genus outlined above, *l. plateni* would appear to have undergone character displacement in Mindanao. Character displacement has been defined by Grant (1972) as 'the process by which a morphological character state of species changes under natural selection arising from the presence, in the same environment, of one or more species similar to it ecologically and/or reproductively'. In the case of *Ptychandra* there is not the 'control' situation discussed by Brown & Wilson (1956) where both species, overlapping and interacting, exist also allopatrically so that comparisons can be made between the sympatric and allopatric states in each species. Only *lorquinii* occurs allopatrically in Luzon and the central Philippines (though interacting possibly with *leucogyne*). The suggestion that character displacement has occurred is based on the observation that in several characters where allopatric *lorquinii lorquinii* resembles *schadenbergi*, *lorquinii plateni* differs markedly from both. This is illustrated in several biometric parameters. *P. lorquinii plateni* is significantly larger than both other forms ($P < 0{\cdot}001$) indicated by characters 1–4, 10 and 13 (see Table 1). It differs significantly ($P < 0{\cdot}001$) in the displacement of the posterior forewing subapical ocellus character 11, plotted against character 1 in the scatter diagrams in Text-figs 20, 21. Whereas the white markings of the female forewing of *l. lorquinii* and *schadenbergi* are generally similar, those of *l. plateni* are modified into a band from the centre of the costa to the tornus as in female *negrosensis*. Biometrically (see Text-figs 16–19) *lorquinii leytensis* is placed with *lorquinii plateni* and *lorquinii bazilana* but in ♂ and ♀ facies it is

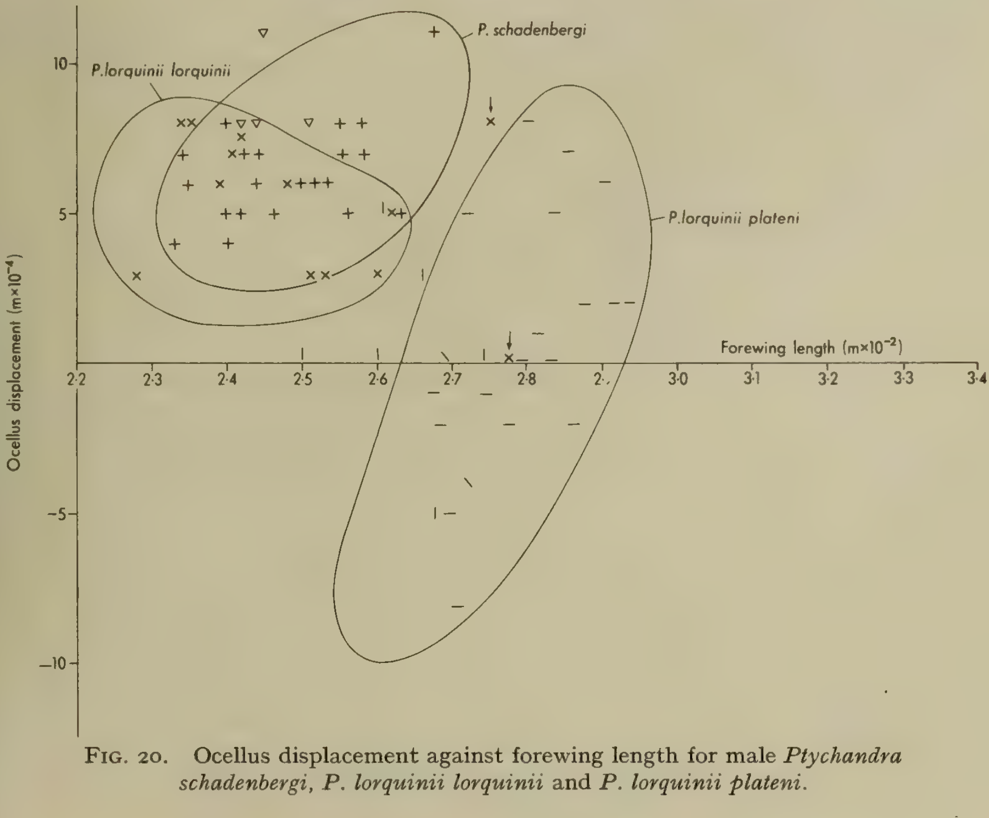


FIG. 20. Ocellus displacement against forewing length for male *Ptychandra schadenbergi*, *P. lorquinii lorquinii* and *P. lorquinii plateni*.

intermediate between these and *lorquinii lorquinii*. A clinal pattern cannot be ruled out.

Positive identification of character displacement in *plateni* must await resolution of the second criterion identified by Grant (1972), that the observed differences between the sympatric and allopatric forms of *lorquinii* should be directly attributable to selection arising from the presence of *schadenbergi*. This awaits further study of the ecology of the species involved and of their variation.

HAIR PENCIL AND BRAND STRUCTURES IN *PTYCHANDRA*

The secondary sexual characters of male *Ptychandra* – brands, hair pencils and pouches – provide good diagnostic features at the species level and are of interest as one of the main differences between the genus and other Lethini. Consequently they have been studied in detail and their structures are given comparatively here rather than under each species.

The most prominent features are found on the forewing just below the cell close to the origin of M_3 and are illustrated in Pls 1 and 2. Only *schadenbergi* does not possess a broad black hair pencil (Pl. 2, fig. 4). For the remaining five species the pencil arises close to the origin of M_3 and usually covers a patch of broad modified scales. Three forms of this structure are recognizable.

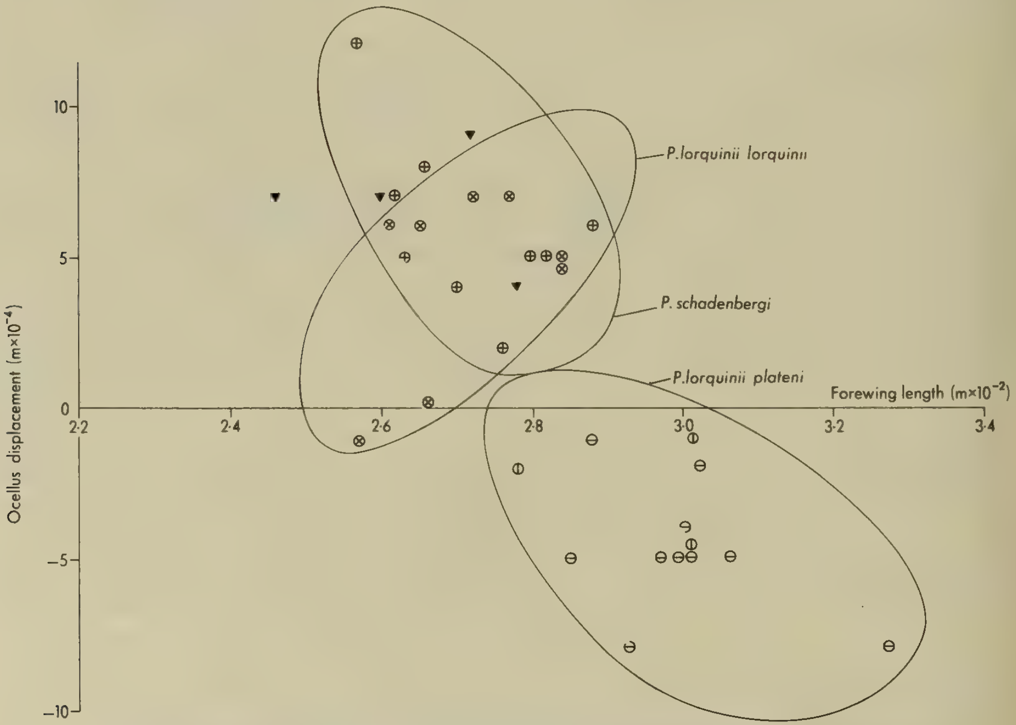


FIG. 21. Ocellus displacement against forewing length for female *Ptychandra schadenbergi*, *P. lorquinii lorquinii* and *P. lorquinii plateni*.

Type (a) (Pl. 1, fig. 1). The hair pencil arises from a poorly defined area at the base of cell M_3 which is characterized by brown, not purple, scales. The pencil overlays part of cell CuA_1 containing a roughly triangular area of slate-grey scales (*talboti*).

Type (b) (Pl. 1, fig. 2; Pl. 2, fig. 4). The hair pencil arises from a sharply defined pale elliptical area at the base of cell M_3 and extends over CuA_1. The vein is sunken there and the depression is filled with shiny black scales (*leucogyne*, *mindorana*).

Type (c) (Pl. 1, fig. 3; Pl. 2, fig. 6; Text-fig. 1). The hair pencil arises from the lower vein of the cell at the base of cell M_3 and extends into cell M_3 covering a well defined roughly circular area of pale mealy scales (*lorquinii* subspp. (except *leytensis* which lacks the mealy scales), *negrosensis*).

In addition to these structures all species except *talboti* have a pouch in the interneural furrow of cell CuA_1 which runs from the base of the cell for about a third to half of its length. This contains a delicate light brown hair pencil of the same length as the pouch. The pencil arises external to the pouch at the origin of CuA_2 and can be seen entering the pouch. It can be brought out by hooking a fine needle into the loop of hair between the pencil origin and where it enters the pouch. The structure is surrounded by an area of very small turquoise scales that are restricted to cell CuA_1 with forewing brand type (c) and surround the shiny black scales in brand type (b).

The hindwing brand structures (Pl. 3, figs 7–12) occur in the cell at the base of

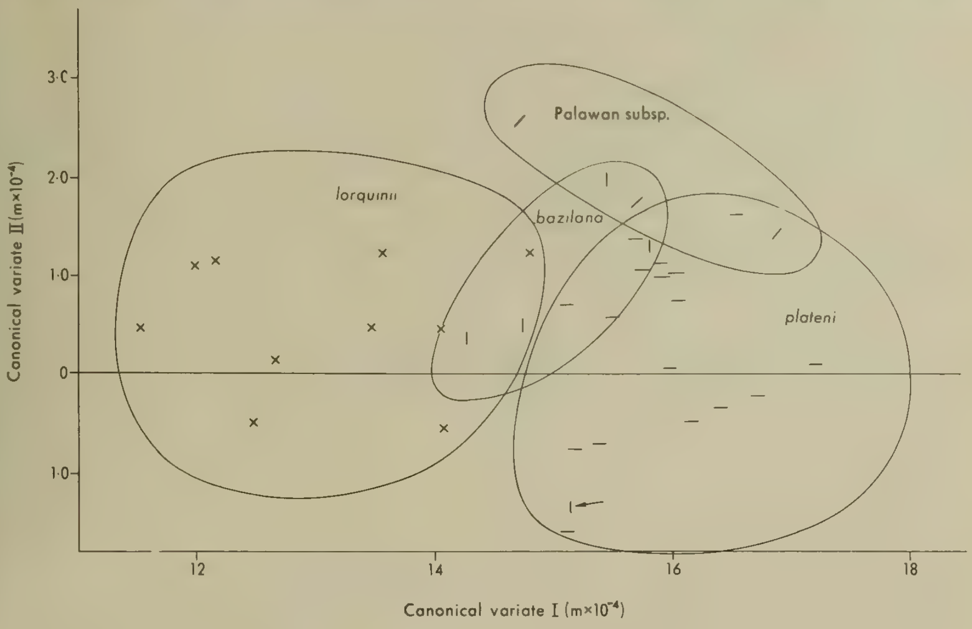


FIG. 22. Biometric study. First and second canonical variate scores for *Ptychandra lorquinii* subspecies (males).

Rs. In *lorquinii* no modification of the basic regular rows of purple scales is apparent. In *mindorana* there is an elongate area of larger, more irregular scales, while *schadenbergi* often has a concentration of hairlike androconia over a patch where the purple scales are lacking. In the other three species a prominent black hair pencil extends over a depression filled with black shiny scales at the origin of M_1. The general form is similar to that of forewing brand type (b).

KEY TO THE SPECIES OF *PTYCHANDRA*

1 Upperside predominantly deep blue. Males 2
– Upperside brown and white. Females 7
2 Black external hair pencil on forewing 3
– No such external hair pencil.
Hair pouch between veins CuA_1 and CuA_2 present. Gnathos terminally hooked without dorsal teeth . . . . **schadenbergi** (p. 244)
3 Black hair pencil on upperside forewing arising at base of vein M_3 4
– Hair pencil arising in cell M_3 5
4 Black hair pencil at anterior margin of hindwing cell. Two or less forewing submarginal ocelli. . . . . **negrosensis** (p. 250)
– No such hair pencil on hindwing. Three submarginal ocelli on underside forewing. **lorquinii** (p. 237)
5 Forewing hair pencil arising from a well defined pale elliptical area and covering black specialized scales straddling CuA_1. Forewing greater than 24 mm . 6
– Forewing hair pencil arising from a loosely defined dark area and covering a triangular patch of slate-grey mealy scales in cell CuA_1. Forewing less than 21 mm. Four forewing submarginal ocelli. Gnathos smooth, without terminal hook **talboti** (p. 248)
6 Black hair pencil in hindwing cell arising at base of vein *Rs*. Four forewing submarginal disjunct ocelli. Hindwing tail hooked. Gnathos smooth, tapered distally. Tip of uncus smoothly curved . . . . . **leucogyne** (p. 246)
– No such hair pencil. Three conjoined forewing submarginal ocelli. Tails of hindwing straight. Gnathos toothed dorsally. Tip of uncus indented ventrally **mindorana** (p. 245)
7 Discal area of upperside hindwing predominantly white or off-white 8
– Discal area of upperside hindwing predominantly brown 10
8 Three conjoined submarginal ocelli on forewing underside. Tails at vein M_3 straight **schadenbergi** (p. 244)
– Four disjunct submarginal ocelli on underside forewing. Tail at vein M_3 hooked . 9
9 White area of forewing upperside not extending to inner margin. Forewing less than 22 mm . . . . **talboti** (p. 248)
– White area of forewing upperside reaching inner margin. Forewing greater than 24 mm.
Tail hooked . . . . **leucogyne** (p. 246)
10 Discal area of hindwing upperside with dull reddish area around costal ocellus. Forewing 35 mm . . . . **negrosensis** (p. 250)
– Discal area brownish without reddening around costal ocellus 11
11 Hindwing tails straight, equal or subequal on veins M_2, M_3, and CuA_1. Hindwing outer margin smoothly curved . . . . . **mindorana** (p. 245)
– Tail on M_3 hooked and much longer than those on other veins. Tails on M_2 and CuA_1 much less than that on M_3 . . . . **lorquinii** (p. 237)

The brief key given by Fruhstorfer (1911) for the separation of *lorquinii* and *schadenbergi* appears to be incorrect and misleading. *P. schadenbergi* is said to possess a hindwing hair pencil in the cell and a short stiff hair pencil below M_3 on the forewing. Both these features are found in *leucogyne*, only the latter in *lorquinii* and neither in *schadenbergi*. However, in the majority of specimens of *schadenbergi* there is a small narrow patch on the hindwing in the cell close to the origin of *Rs* where the hindwing hair pencil is found in other *Ptychandra* which lacks purple scales. Fruhstorfer states that *lorquinii* possesses a short hair pencil between '1st and 2nd median veins' (CuA_1 and CuA_2). This may either refer to the long hair tuft enclosed in the deep pouch in this position or to the prominent short hair pencil arising in *lorquinii* close to the lower discocellular vein and shading a black androconial patch in cell M_3. The extent of curvature of the lower discocellular vein used by Fruhstorfer (1911) to separate *schadenbergi* and *lorquinii* is unreliable.

DESCRIPTIONS OF THE SPECIES

Ptychandra lorquinii Felder & Felder

(Text-figs 1, 2, 8; Pl. 1, fig. 3; Pl. 3, fig. 7; Pl. 4, figs 13, 14)

Ptychandra lorquinii Felder & Felder, 1861 : 304; Felder & Felder, 1867 : 498, pl. 68, figs 1, 2, 3; Semper, 1886 : 58 (in part); Staudinger, 1887 : 22, pl. 78, 2 figs.
Ptychandra lorquini Fruhstorfer, 1899 : 80; 1908 : *222*; 1911 : 330; Gaede, 1931 : 320; Lewis, 1973 : 276, pl. 172, fig. 1. [Unjustified emendation.]

DESCRIPTION. ♂. Forewing length 22·9–29·2 mm. *Facies.* Upperside deep iridescent blue, diffusely margined with dark brown, sometimes extending to ocellar area. Forewing with subapical rhomboidal white fleck on costa and inwardly pointing submarginal white chevrons in cells *Rs* to *1A* with maximum convexity half way or more than half way distally on costa. The white markings may be reduced or diffuse in some subspecies. Forewing brand type (a) (Pl. 1, fig. 1). Hindwing quadrate, tailed at M_3, with cell M_2 excavated more deeply than cell M_3, giving tail a hooked appearance. Tail obtusely terminated. Not tailed at vein M_2. Hindwing brand in cell absent, hindwing ocelli sometimes darkly visible on upperside. Underside ground colour mid-brown with discal area traversed by three chocolate-brown wavy bands. Hindwing submarginal ocelli in cells *Rs* to *1A* disjunct, with that in cell *Rs* inwardly displaced and enlarged. Forewing with equal or subequal ocelli in cells M_1, M_2 and M_3, that in cell M_3 displaced inwardly. Fringes white, interrupted with brown at vein ends. *Antennae.* Club tip rufous with base dark brown. Shaft with uniform grey-brown scales dorsally, rufous ventrally with pale flecks towards base. *Genitalia.* Valves with variable sclerotized processes at apex, long setae on outer surface. Aedeagus similar to that of *schadenbergi* (Text-fig. 3b). Gnathi with dorsal teeth and with tip hooked and broadened (e.g., Text-fig. 6).

♀. Forewing length 25·7–32·7 mm. *Facies.* Upperside forewing ground colour brown broken by a white subapical fleck, submarginal white chevrons, white spots in the position of the submarginal ocelli in cells M_2 and M_3 underside (which may be reduced or sometimes absent), and a broad white post discal band arising near centre of costa running diagonally to M_3 sometimes broken or conjoined with white subdiscal band extending from close to submarginal ocelli to below the cell but not reaching inner margin. The extension of the line of the forewing postdiscal band passes below white spot in cell M_2 if present. Underside forewing with three confluent ocelli decreasing in size posteriorly and with those in cells M_2 and M_3 usually white. Wing shape similar to male but forewing costa evenly curved. Upperside hindwing discal area predominantly light brown but becoming off-white around ocelli in cells Rs to M_2. Ocelli in cells CuA_1 and M_3 ringed with buff; those in cells Rs, M_1, M_2, $1A + 2A$ darker, less distinct and confluent. Underside off-white ground colour marbled with brown with ocelli placed as male, edged inwardly and marginally with diffuse cream zone. Fringes off-white interrupted by light brown at vein ends. *Antennae*. As males but strongly flecked with pale scales basally.

DISTRIBUTION. Luzon, Marinduque, Leyte, Bohol, Samar, Panay, Mindanao Bazilan, Palawan. Recorded from the Polillo Is. (Fountaine, 1926) and Babuyan Is. (Semper, 1887) but these specimens were not found in the collections searched. Notably absent from material from Mindoro and Negros.

BIOLOGY. See under subspecies of *lorquinii*.

DISCUSSION. Fruhstorfer (1899) and subsequent authors refer to *lorquinii* as '*lorquini*', an unjustified emendation.

P. caerulans is considered here to be a synonym of *lorquinii* and is attributable to the nominate subspecies. The blue colour of the upperside, which is somewhat variable in *lorquinii*, is paler than usual in the unique male holotype of *caerulans* but otherwise it is not distinguishable. Genitalia are as *lorquinii*. Fruhstorfer (1908) himself expressed doubts as to the validity of the species.

This species of *Ptychandra* exhibits a number of distinct island races, described below.

KEY TO THE SUBSPECIES OF *P. LORQUINII*

1 Upperside predominantly purple, males 2
– Upperside brown and white or cream, females 5
2 White or brown mealy scales present beneath forewing hair pencil in cell M_3 . 3
– Mealy scales absent or scarce beneath forewing hair pencil.
Forewing length 26·9–27·2 mm . . . . . **lorquinii leytensis** (p. 242)
3 Hindwing underside ocelli white-pupilled, ringed outwardly with black, mid-brown, buff and mid-brown bands, the middle bands being separated by a thin dark brown line. Ocellus in forewing cell M_3 proximally displaced from the line joining those in cells M_1 and M_2.
Forewing length 22·9–27·8 mm . . . . **lorquinii lorquinii** (p. 239)
– Hindwing underside ocelli white-pupilled, ringed with black, light brown, buff and mid-brown without a dark dividing line between the middle bands. Ocellus in forewing cell M_3 either proximally or distally displaced 4
4 Forewing length 26·7–29·3 mm . . . . . **lorquinii plateni** (p. 241)
– Forewing length 25·0–27·4 mm.
Dorsal surface of gnathos with few but large teeth (Text-fig. 7)
lorquinii bazilana (p. 242)
5 Ground colour chocolate-brown. Subapical forewing white band constricted or broken in cell M_3 . . . . **lorquinii leytensis** (p. 242)
– Ground colour sandy or reddish brown. Subapical forewing white band entire or broken in cell M_3 6
6 Hindwing underside ocellus white pupilled and ringed outwardly with dark brown, buff, and mid-brown bands; the two buff bands being separated by a thin dark

brown line. Forewing cell M_3 ocellus proximally displaced relative to those in cells M_1 and M_2.
Upperside subapical white band not continuous with discal white patch **lorquinii lorquinii** (p. 239)

– Hindwing underside ocellus white pupilled and ringed with dark brown, light brown, buff and mid-brown bands, without a dark dividing line between the two middle bands. Forewing cell M_3 ocellus distally displaced relative to those in cells M_1 and M_2 7

7 Broad unbroken postdiscal off-white band running from halfway along costa to discal white area, sometimes slightly constricted in cell M_3 **lorquinii plateni** (p. 241)

– Subapical off-white postdiscal band strongly constricted or broken in cell M_3 **lorquinii bazilana** (p. 242)

The key above has been based where possible on qualitative rather than biometric characters. However, in the case of male *lorquinii plateni* and *l. bazilana* differentiation is difficult and may be assisted by measurement of several parameters (see biometric section). The range of measurements given is that actually observed and is limited by the sample size (see individual descriptions).

Ptychandra lorquinii lorquinii Felder & Felder

(Text-figs 1, 2, 8; Pl. 1, fig. 3; Pl. 3, fig. 7; Pl. 4, figs 13, 14)

Ptychandra lorquinii lorquinii Felder & Felder, 1861 : 304. LECTOTYPE ♂, PHILIPPINES: Luzon (BMNH), here designated [examined].
Ptychandra caerulans Fruhstorfer, 1908 : 223; 1911 : 330; Gaede, 1931 : 320. LECTOTYPE ♂, PHILIPPINES: Luzon (BMNH), here designated [examined]. **Syn. n.**
Ptychandra lorquinii f. *obscurior* Fruhstorfer, 1908 : 223; Gaede, 1931 : 320. Type-material (not definitely located), PHILIPPINES: Luzon. **Syn. n.**
Ptychandra lorquinii obscurior Fruhstorfer; Fruhstorfer, 1911 : 330.

DESCRIPTION. ♂. Forewing length 22·9–27·8 mm, n = 15. *Facies.* Upperside deep iridescent blue with forewing prominently marked with a white apical fleck and submarginal chevrons. Underside usually traversed with metallic wavy bands. Hindwing ocelli with white pupils ringed outwardly with black, mid-brown, buff and mid-brown bands, the middle bands being separated by a thin dark brown line. *Genitalia* (Text-fig. 6). Gnathos with broadened, hooked distal ends and two or more prominent dorsal teeth.

♀. Forewing length 25·7–28·4 mm, n = 8. *Facies.* Upperside ground colour mid-brown with a subapical white band extending from vein M_3 to approximately halfway along costa, usually disjunct from subdiscal white band but occasionally just meeting it. Subdiscal white band usually running almost completely along the length of inner margin but separated from it by a thin brown area. White spot corresponding to cell M_2 underside ocellus present and often a similar spot corresponding to cell M_3. Width of yellow ring of hindwing underside costal ocellus 0·4–1·0 mm, $\bar{x}$ = 0·76 mm, n = 16. Ocelli white-pupilled, ringed successively with dark brown, buff, buff and mid-brown bands; the two buff bands being separated by a thin dark brown line.

DISTRIBUTION. Luzon. Five males attributable to this subspecies in Carnegie Museum were labelled 'Mindanao'. As specimens from other genera from the same collection were labelled Mindanao, yet of the Luzon subspecies (H. Clench, personal communication), it seems reasonable to assume that these *Ptychandra* specimens were mislabelled.

BIOLOGY. Said to fly from April to January (Semper, 1886) but material has been seen from almost all months.

DISCUSSION. The holotype of *P. caerulans* is attributable to this subspecies.

P. lorquinii obscurior is synonymized here. It was described (Fruhstorfer, 1908) as having the white areas of the hindwing reduced, a normal feature of the typical subspecies. First described as a forma, it was later elevated to subspecific rank (Fruhstorfer, 1911) without comment. An apparently normal female from Fruhstorfer's collection bears his 'type' label (see Material examined below) and corresponds with his brief description. He refers for differentiation to the illustration given by Staudinger (1892), but this is not substantially different in marking from the lectotype.. The type of this form or subspecies did not appear in the catalogue of the Fruhstorfer collection (Martin, 1922 : 66). In the description of the female forma *obscurior* (Fruhstorfer, 1908) the specimens, presumably males, are described with androconial patches as for the typical form and are not distinguished.

In addition to variation in colour of the purple upperside *lorquinii* varies considerably in the brightness of the underside markings and the distinctness of the subapical fleck and antemarginal chevrons. The underside of some specimens is marked with metallic wavy lines, as commonly found in *mindorana*. One specimen has been found with two forewing ocelli and one with four, the extra spot being in cell CuA_1, not cell R_5 as in *leucogyne* (q.v.).

MATERIAL EXAMINED.

Ptychandra lorquinii, lectotype ♂, LUZON, genitalia preparation no. TGH 1966–689 (BMNH); 1 ♀ paralectotype, LUZON (*Lorquin*) (BMNH); 3 ♂ putative paralectotypes, LUZON (BMNH). *Ptychandra caerulans*, lectotype ♂, LUZON, genitalia preparation no. TGH 1966–690 (BMNH). *Ptychandra lorquinii* f. *obscurior*, syntype ♀, LUZON (BMNH).

LUZON: 16 km W. of Baguio, 2500 ft, 1 ♂, 14.xi.1966 (*C. G. Treadaway*) (BMNH); Baguio, 2 ♂, 2 ♀, (CM); Baguio City, 3 ♀, ix. 1957 (*C. G. Treadaway*) (BMNH); Bataan, 1 ♂, 11–20.vi.1880 (BMNH); Cape Engano, 1 ♂ (*Whitehead*) (BMNH); Klondyke, 800 ft, 19 ♂, 6 ♀, 19–27.xii.1911, 1–26.iv.1912, 23.v.1912 (*A. E. Wileman*) (BMNH); Lepanto, 1 ♂ (*Whitehead*) (BMNH); Los Baños, 1 ♂, 10.ix.1920 (BMNH); Los Baños, 1 ♂, 10.ix.1920 (AMNH); Los Baños, 1 ♂, 14.v.1911 (*A. E. Wileman*) (BMNH); Los Baños, 1 ♂, 3 ♀, (BMNH); Marivelis, 1 ♂, 11.xi.81 (SMN); Montalban, Rizal, 1 ♂, 2 ♀, 4. i, 5.ii.1914 (*A. E. Wileman*) (BMNH); Montalban, 1 ♂, 29.viii.1966 (*C. G. Treadaway*) (BMNH); Montalban 100 m, 1 ♂, 26.vi.1971 (*C. G. Treadaway*) (BMNH); Mt Arajat, 1 ♂, 1 ♀, viii. 1903 (*Browne*) (BMNH); Mt Makiling, 1 ♂, 4.viii.1956 (*C. G. Treadaway*) (BMNH); Mt Makiling, 1500 ft, 1 ♂, 3 ♀, viii, 4.ix.1966 (*C. G. Treadaway*) (BMNH); Palali, Benguet, 2000 ft, 6 ♂, 5 ♀, 21–25.xiii.1912, 27.vi.1913 (*A. E. Wileman*) (BMNH); Pulang Lupa, Rosales, 1 ♂, 12.xi.81 (SMN); Quezon Nat. Park, 1100 ft, 3 ♂, 2 ♀, 27–29.iv.1969 (*C. G. Treadaway*) (BMNH);

Quezon Nat. Park, Atimonan Road, 1 ♂, 18.v.1968 (*C. G. Treadaway*) (BMNH); Sierra Madre, 1 ♂ (*C. G. Treadaway*) (BMNH); Tarlac, 4 ♂ (*Browne*) (BMNH); Tagaytay Ridge, 1800 ft, 9 ♂, 8 ♀, 3.ix.1966 (*C. G. Treadaway*) (BMNH); 'N. Luzon' 5000–6000 ft, 1 ♂ (*Whitehead*) (BMNH); Luzon, 1 ♂, 2 ♀ (BMNH). Marinduque: 3 ♂, 1 ♀, vi. 1972, x. 1973 (*C. G. Treadaway*) (BMNH). Mindanao: Mindanao, 5 ♂ (*Haslam*) (CM).

Ptychandra lorquinii plateni Semper **stat. n.**

(Text-fig. 6; Pl. 4, fig. 15)

Ptychandra lorquinii Felder & Felder; Semper, 1886–95 [in part].
Ptychandra plateni Semper, 1892 : 328. LECTOTYPE ♂, Philippines: North Mindanao (SMN), here designated [examined].
Ptychandra lorquinii mindanaensis Fruhstorfer, 1899 : 80; 1908 : 223; 1911 : 330. LECTOTYPE ♀, Philippines: Mindanao (BMNH), here designated [examined]. **Syn. n.**
Ptychandra lorquinii var. *mindanaensis* Fruhstorfer; Gaede, 1931 : 320.

Description. ♂. Forewing length 25·7–29·2 mm, n = 22. *Facies.* Upperside dull iridescent blue narrowly margined with dark brown. White apical fleck and marginal white chevrons faint or absent. Turquoise scales scattered between discal cell and costa. Underside marbled with dull brown and light brown without metallic wavy bands. Marginal ocelli with bluish white pupil ringed with black, light brown, buff and mid-brown, without a dark thin dividing line between the middle rings. Forewing submarginal ocellus in cell M_3 either proximally or distally displaced (0·9–1·0 mm, $\bar{x}$ = 0·02 mm, n = 25). *Genitalia.* Similar to those of *lorquinii lorquinii* (Text-fig. 2) but gnathos tending to be narrower at posterior end, less strongly reflexed and having more but smaller dorsal teeth which extend further anteriorly (Text-fig. 6). Valves similar to those of *lorquinii lorquinii* (Text-fig. 2) but lacking central terminal process.

♀. Forewing length 28·5–32·7 mm, n = 11. *Facies.* Broad unbroken median white band on forewing upperside running from about halfway along costa to tornus and with the subdiscal area uniformly brown. Median band sometimes slightly constricted in cell M_2. Submarginal white spot in cell M_2 present, in cell M_3 absent on upperside forewing. Ground colour sandy brown. Forewing submarginal ocellus in cell M_3 displaced distally (0·1–1·3 mm, $\bar{x}$ = 0·74 mm, n = 18). Maximum width of mid-brown band on costal ocellus, 0·5–1·0 mm, $\bar{x}$ = 0·68, n = 18. Ocelli with white pupil ringed with dark brown, light brown buff and mid-brown bands. *Genitalia.* Bursa copulatrix with signa consisting of two parallel bands of spines dorsally, each consisting of about 100 rows, length 2·5 mm, of straight short teeth placed 3 abreast. Width of each rank of 3 about 0·2 mm.

Distribution. Mindanao. One specimen found labelled 'Manille'.

Biology. Said to fly from May to October and again in December and January (Semper, 1892).

Discussion. Fruhstorfer (1899) considered *plateni* Semper to be a nomen nudum but Semper (1892) in his brief description refers back to his description of *P. lorquinii* in which the races of Luzon and Mindanao are adequately distinguished. The name *plateni* is therefore valid.

One male example of this subspecies was found which, though normal in pattern and structure, was abnormally large, having a forewing length of 31·0 mm.

MATERIAL EXAMINED.

Ptychandra lorquinii plateni, lectotype ♂, MINDANAO: North, coll. C. Semper 'Typus SMFL 20' (SMN); paralectotypes, 1 ♂, 1 ♀, N. Mindanao (SMN); 1 ♂, 12.i.1882, SIBULAN (SMN); 1 ♂, BULLONIS, S., (SMN); 3 ♂, MINDANAO (BMNH); putative paralectotypes, 5 ♂, 3 ♀, MINDANAO (*Platen*) (MNHU); 1 ♂, DAVAO (*Platen*) (MNHU). *Ptychandra lorquinii mindanaensis*, lectotype ♀, MINDANAO (BMNH); paralectotype ♂, MINDANAO (BMNH).

MINDANAO: Agusan, Davao, 1 ♂, v. 1959 (*J. N. Jumalon*) (BMNH); Calian, Davao, 1 ♂, 31.v.1930 (*C. F. Clegg*) (CM); Davao, 2 ♂, 1 ♀ (*Platen*) (BMNH); Davao, 2 ♂, 1 ♀, iii. 1890 (BMNH); Jaliobong, Agusan, 1 ♂, 15.v.1968 (*C. G. Treadaway*) (BMNH); Kolambugan, Lanac, sea level, 1 ♂, 20.v.1914 (*A. E. Wileman*) (BMNH); Margosatubi, 1 ♂, (BMNH); Samboangan, 1 ♀, ix. 1891 (BMNH); Talaud, Davao, 1 ♀ (*O. Jumalon*) (BMNH); Talaud, Davao, 1 ♂, 8.ii.1961 (*C. G. Treadaway*) (BMNH); Mindanao, 1 ♀ (*J. J. Mounsey*) (BMNH); Mindanao, 16 ♂, 5 ♀, 1903–1904 (*J. Waterstradt*) (BMNH); N. Mindanao, 1 ♂ (BMNH); 1 ♂ (*Brabant*) (BMNH); Mindanao, 2 ♂, 3 ♀ (BMNH). LUZON: 'Manille', 1 ♀, (BMNH).

Ptychandra lorquinii bazilana Fruhstorfer

(Text-fig. 7; Pl. 4, fig. 16)

Ptychandra lorquinii bazilana Fruhstorfer, 1899 : 79; 1908 : 223; 1911 : 330, pl. 93, row g, second fig. LECTOTYPE ♀, PHILIPPINES: Bazilan (BMNH), here designated [examined].
[*Ptychandra caerulans* Fruhstorfer; Fruhstorfer, 1911 : pl. 93, row g, first fig. Mislabelled.]
Ptychandra lorquinii var. *bazilana* Fruhstorfer; Gaede, 1931 : 320.

DESCRIPTION. ♂. Forewing length 25·0–27·4 mm, n = 6. *Facies*. As in *lorquinii plateni*. *Genitalia*. Similar to those of *lorquinii plateni* but with apex of gnathos less broadened, less reflexed and with a few but more prominent dorsal teeth (Text-fig. 7).

♀. Forewing length 27·8–30·1 mm, n = 3. *Facies*. Forewing postdiscal white band constricted or broken in cell M_3 with slight interruptions produced by dusting of black scales along M_3 and CuA_1. Otherwise similar to *lorquinii plateni*. Forewing submarginal ocellus in cell M_3 weakly displaced outwardly (0·1–0·7 mm, $\bar{x}$ = 0·30 mm, n = 4). Outer mid-brown band on hindwing costal ocellus 0·3–0·6 mm, $\bar{x}$ = 0·48 mm, n = 4.

DISTRIBUTION. Bazilan.

BIOLOGY. Not recorded.

MATERIAL EXAMINED.

Ptychandra lorquinii bazilana, lectotype ♀, BAZILAN, ii–iii. 98 (*Doherty*) (BMNH). 4 ♂, 2 ♀ paralectotypes, BAZILAN, ii–iii. 98 (*Doherty*) (BMNH); 1 ♂ paralectotype, BAZILAN ii–iii. 98 (*Doherty*) (CM).

BAZILAN: 16 ♂ (BMNH); 1 ♂ (*C. J. Grist*) (BMNH).

***Ptychandra lorquinii leytensis* subsp. n.**

(Text-fig. 14; Pl, 4, fig. 17)

DESCRIPTION. ♂. Forewing length 26·9–27·2 mm. *Facies*. Slightly larger than nominotypical form and more boldly marked. Upperside markings as in *lorquinii lorquinii* but with distinct, pale blue-white marginal line on upperside hindwing. Forewing brand type (a) (Pl. 1, fig. 1) but with mealy scales beneath the hair pencil much reduced or absent. Underside with dull silver streaking but otherwise markings as in *plateni*. *Genitalia*. Similar to those of *lorquinii plateni*, except gnathos less strongly hooked and dorsal teeth on it weakly developed (see Text-fig. 14).

♀. Forewing length 28·7–30·4 mm. *Facies*. White markings resemble those of *lorquinii bazilana* but with pinkish tinge in white forewing postdiscal band and no dusting of black scales along CuA_1 and M_3. Ground colour of upperside dark chocolate brown. Forewing submarginal ocellus in cell M_3 displaced outwardly. Hindwing costal ocellus, outer mid-brown ring broad (0·8–1·1 mm, $\bar{x} = 1{\cdot}0$ mm, n = 6).

DISTRIBUTION. Leyte.

BIOLOGY. Found quite commonly in forest clearings up to 700 m (*J. N. Jumalon*, personal communication).

DISCUSSION. This subspecies is distinguished in the female from other *lorquinii* by the different shade of brown markings. The white markings can be regarded as transitional between the nominotypical species of Luzon and *lorquinii plateni* from Mindanao. The male is similarly intermediate, having the larger size of the Mindanao form with the usually more bold markings of the Luzon race. The forewing brand is distinctive with its reduced mealy scaling below the hair pencil.

MATERIAL EXAMINED.

Holotype ♂, LEYTE: Catamon, St Bernard, 800 ft, 6.vi.1967 (*O. Jumalon*) (BMNH).

Paratypes. LEYTE: Catamon, St Bernard, 3 ♂, 6, vi., 6.xi.1967 (*O. Jumalon*) (BMNH); Lake Danao, Ormoc, 1 ♀, 29.ix.1963 (*J. N. Jumalon*) (BMNH); Lower Tangunan, Ormoc, 1 ♀, 21.xi.1963 (*J. N. Jumalon*) (BMNH); Tungunan Hot Springs, Cananga, 2 ♂, 20.xi.1966 (*J. N. Jumalon*) (BMNH).

Non-paratypic material. LEYTE: Catamon, St Bernard, 1 ♂, 1 ♀, vi. 1967 (*J. N. Jumalon*) (BMNH); Lake Danao, Ormoc, 1 ♂ (*J. N. Jumalon*) (BMNH); Ormoc, 2 ♂, 10.viii.1965, 10.xi.1965 (*J. N. Jumalon*) (BMNH); Ormoc, 1 ♂, 1 ♀, (*C. G. Treadaway*) (BMNH); Ormoc, 1 ♂, 3.x.1965 (*J. N. Jumalon*) (BMNH); Tungunan Hot Springs, 2 ♂, 1 ♀, 17.xi.1968, xi. 1966, (*J. N. Jumalon*) (BMNH); West Leyte, 1 ♂, xi. 1966 (*J. N. Jumalon*) (BMNH).

Ptychandra lorquinii subspp. incertae sedis

Occasional specimens of *lorquinii* have been seen from Palawan, Bohol, Panay and Samar. The Palawan specimens, all of which are males, are not distinguishable from *lorquinii plateni* except biometrically (see biometric section). The lower discocellular vein on forewing of *lorquinii bazilana* is significantly shorter than from the Palawan specimens and they are distinct from the Luzon specimens. The male specimens from Panay and Samar closely resemble *lorquinii leytensis* in their prominent white upperside markings, relatively broad hindwings and strongly coloured undersides with dull silver streaking. The female specimens from Bohol (see Pl. 4, fig. 18) and Samar closely resemble *lorquinii plateni* and *lorquinii leytensis* in patterning, particularly in having a similar subapical white band and similarly ringed ocelli. When a longer series of these insects has been taken from these islands it is likely that subspecific differences will become apparent.

MATERIAL EXAMINED.

BOHOL: 1 ♀ (SMN). PALAWAN: 1 ♂ (*Platen*) (BMNH); 1 ♂ (BMNH). PANAY: Yiollo, 1 ♂, iv. 28 (USNM). SAMAR: Antiago Valley, 1 ♀ (*J. J. Mounsey*) (BMNH); 1 ♂, vii–viii. 1896 (*J. Whitehead*) (BMNH).

Ptychandra schadenbergi Semper

(Text-figs 3a, b, 11, 12; Pl. 2, fig. 4; Pl. 3, fig. 8; Pl. 4, figs 19, 20)

Ptychandra schadenbergi Semper, 1886 : 59, pl. 11, fig 6; Reuter, 1897 : 122; Fruhstorfer, 1899 : 80; 1908 : 222; 1911 : 329, pl. 93, row g, third fig.; Gaede, 1931 : 320; Hobby, 1940 : 220; Lewis, 1973 : 276, pl. 172, fig. 2. LECTOTYPE ♂, PHILIPPINES: North Mindanao (SMN), here designated [examined].

Ptychandra schadenbergi f. *hebetatrix* Fruhstorfer, 1908 : 222; 1911 : 329; Gaede, 1931 : 320. LECTOTYPE ♀, PHILIPPINES: Mindanao (BMNH), here designated [examined].

DESCRIPTION. ♂. Forewing length 23·2–26·7 mm, n = 23. *Facies.* Upperside deep iridescent blue with prominent white submarginal chevrons and white apical fleck on forewing. Forewing ocelli in cells M_1, M_2 and M_3 and those in M_2 and M_3 confluent. Fringes brown. Pouched hair pencil present in cell CuA_1 forewing below cell containing long dark brown hairs and narrowly bordered with turquoise scales. Forewing subquadrate with maximum curvature distal of centre of costa. Hindwing outer margin evenly curved with well defined scalloping between veins. Hindwing tail on M_3 short, straight, weakly hooked and terminated acutely. Underside ground colour brown with darker marbling. Hindwing with usual ocelli with white pupil ringed by black, dark brown, buff and dark brown. Hindwing hair pencil in cell absent but small patch of modified dark scales present close to origin of Rs in most specimens. *Antennae.* Rufous, darker dorsally, especially on club. Thin cream line ventrally extending from base to two-thirds length of antennae. *Genitalia* (Text-fig. 3a, b). Tip of uncus slightly concave (Text-fig. 11). Gnathi (Text-fig. 12) without dorsal teeth, becoming distinctly narrower just before terminal hook. Valves tending to have more than one main terminal process.

♀. Forewing length 25·7–28·8 mm, n = 9. *Facies.* Upperside mid-brown with white markings. Wing shape similar to male. Forewing with rhomboidal white subapical fleck on costa, white submarginal ocellar spot in cell M_2, white postdiscal band running from costa towards spot in cell M_2. White discal patch bounded on inner margin by brown, never meeting this edge. Hindwing discal area white, bounded outwardly by brown, inward of the ocellar area. Ocelli sometimes faintly visible on upperside hindwing, particularly in cell CuA_2. White markings on underside as upperside but traversed by wavy brown thin bands in discal area. Forewing with three conjoined ocelli in cells M_1, M_2 and M_3. Ocelli white pupilled, distinctively ringed in succession with black, dark brown, buff and dark brown. *Antennae.* Patterned as male.

DISTRIBUTION. Mindanao. One specimen each examined labelled Palawan and Luzon, possibly with locality in error.

BIOLOGY. Not recorded.

Discussion. A female specimen of *leucogyne* was illustrated and described by Semper (1886) as the female of *schadenbergi*, although Semper had female specimens of *schadenbergi* in his collection dated before his published description (cf. 1 ♀, Sibulan, 1.xii.81) and possibly even from the same collector (the illustrated specimen was taken 16.xi.81 in Bataan). Using Semper's misidentified figure for comparison Fruhstorfer (1908) described *hebetatrix* as a wet-season form of *schadenbergi*, presuming Semper's less heavily brown shaded specimen to be the dry-season one. Female specimens of *P. schadenbergi* indeed vary considerably, particularly in the extent of brown colouration on the hindwing upperside and the size of the forewing white markings. Specimens have been seen in which the hindwing discal area is pure white and others in which brown dusting invades considerably into the discal area past the ocellar ring. The holotype of *hebetatrix* is intermediate between these extremes of variation. Data to hand are insufficient to correlate this variation with seasonal conditions.

Material examined.

Ptychandra schadenbergi, lectotype ♂, Mindanao, coll. C. Semper 'Typus SMFL 19' (SMN); 1 ♂ paralectotype, Mindanao: N. (SMN); 3 ♂ paralectotypes, Mindanao: N. (BMNH). *Ptychandra schadenbergi* f. *hebetatrix*, lectotype ♀, Mindanao (BMNH).

Mindanao: Baracata, Davao, 1 ♂, xii. 1922 (*F. Grinnell*) (BMNH); Calumbogan, 2 ♂, 1 ♀, vii–viii. 1917 (CM); Davao, 1 ♂, 1889 (*Platen*) (MNHU); Davao, 2 ♀ (*Platen*) (BMNH; Davao, 1 ♂, 1 ♀, iii. 1890, (BMNH); Davao, 1 ♂, 1 ♂, 5.v.1962 (*C. G. Treadaway*) (BMNH); Sibulan, 1 ♂, 3.i.82 (BMNH); Sibulan, 1 ♀, 1.xii.82, (SMN); Talaud, Malita, Davao, 1 ♂, 13.vi.61 (*J. M. Jumalon*) (BMNH); N. Mindanao, 2 ♂ (BMNH); N. Mindanao, 1 ♀ (SMN); 3 ♂, 3 ♀ (*Platen*) (MNHU); N. Mindanao, 2 ♂, 1 ♀, 1903–1904 (*J. Waterstradt*) (BMNH); N. Mindanao, 2 ♂, 3 ♀, (BMNH); N. Mindanao, 2 ♀, 1920 (*C. J. Grist*) (BMNH). Luzon: 1 ♂, 1920 (*E. C. Brabant*) (BMNH). Palawan: 1 ♂ (BMNH).

Ptychandra mindorana Semper **stat. rev.**

(Text-figs 9, 10; Pl. 2, fig. 5; Pl. 3, fig. 10; Pl. 5, figs 21, 22)

Ptychandra mindorana Semper, 1892 : 329. LECTOTYPE ♂, Philippines: Mindoro (SMN), here designated [examined].
Ptychandra lorquinii mindorana Semper; Fruhstorfer, 1899 : 80; 1908 : 223; 1911 : 330.
Ptychandra lorquinii var. *mindorana* Semper; Gaede, 1931 : 320.

Description. ♂. Forewing length 25·9–27·7 mm, n = 4. *Facies.* Forewing strongly convex distal of centre of costa. Scalloped appearance given to outer margins by long prominent white cilia interrupted at vein ends by dark brown ones. White chevrons and subapical fleck well marked. Forewing brand of type (b) (Pl. 2, fig. 5) with pouched hair pencil containing long mid-brown hairs. Pale elliptical source area for hair pencil elongate (3 mm × 1 mm). Hindwing margin rounded, evenly scalloped in cells CuA_1, CuA_2, M_2, and M_3. Tail at M_3 not hooked and poorly developed. Underside dark brown streaked with deep brown and prominent metallic silvery blue lines in discal area. Full series of ocelli on hindwing, edged inwardly and marginally by diffuse pale metallic blue band and with those in cells M_1 and M_2 confluent, that in cell M_2 inwardly displaced. Ocelli white-pupilled, ringed with black, light brown, buff and dark brown; the light brown and buff bands separated by a thin black line, the buff band being broadened distally. *Antennae*. Club tip rufous with base dark brown. Dorsal scaling on shaft grey, extending into club. Ventrally rufous with pale flecks also invading club. *Genitalia*. Tip of uncus notched ventrally (Text-fig. 9).

♀. Forewing length 27·4–30·8 mm, n = 4. Upperside forewing evenly convex along costa, of mid-brown ground colour with cream-coloured markings. Postdiscal bar extending from half-way along costa to M_2 and in line with a cream circular spot in cell M_2 above the submarginal ocellus. Off-white discal patch extending from half-way along the lower discocellular vein towards tornus but not crossing vein $1A + 2A$. Fringes white interrupted with light brown at veins. Upperside hindwing discal area sandy brown becoming paler round costal ocellus. Hindwing margin rounded and evenly scalloped in cells $1A + 2A$, CuA_1, CuA_2, and M_3. Tail at M_3 not hooked, bluntly terminated, short and narrow. Hindwing ocelli diffusely visible on upperside but with light brown rings in cells M_3 and CuA_1 prominent. Upperside cream areas reflected on underside. Forewing underside with three equal confluent ocelli in cells M_1, M_2 and M_3; that in cell M_3 inset. Hindwing cell *Rs* ocellus much enlarged, extending to M_2 and inset. Cell M_2 underside hindwing ocellus also inset and contiguous with that in cell M_1. Ocellus white-pupilled ringed with brown, light brown, buff and brown. *Antennae*. Similar to male.

DISTRIBUTION. Mindoro.

BIOLOGY. Said to fly in February (Semper, 1892).

DISCUSSION. Fruhstorfer (1911) treated *mindorana* as a subspecies of *lorquinii* without comment. However, the differences from *lorquinii* in secondary sexual characters and genitalia and wing shape lead us to consider it a separate species as originally described. The forewing brand closely resembles that of *leucogyne* except that the hair pencil has a more elliptical origin.

MATERIAL EXAMINED.

Ptychandra mindorana lectotype ♂, MINDORO: Paluan, 23.ii.89 (SMN); 1 ♀, paralectotype (SMN).

MINDORO: Calapan, 1 ♂, 1890–91 (*Platen*) (MNHU); Calapan, 1 ♂, 15.v.1956 (*J. N. Jumalon*) (BMNH); 2 ♂, 1 ♀ (BMNH); 2 ♀ (*Platen*) (MNHU); 3 ♂, 3 ♀ (*Platen*) (BMNH).

Ptychandra leucogyne Felder & Felder **stat. rev.**

(Text-figs 4, 13; Pl. 1, fig. 2; Pl. 3, fig. 11; Pl. 5, fig. 23, 24)

Ptychandra leucogyne Felder & Felder, 1867 : 498; Fruhstorfer, 1899 : 81. LECTOTYPE ♀, 'HALMAHEIRA' (BMNH), here designated [examined].
[*Ptychandra schadenbergi* Semper, 1886 : 59–60, pl. 11, fig. 7. Misidentification in part.]
Ptychandra lorquinii leucogyne Felder & Felder; Fruhstorfer, 1908 : 223; 1911 : 330.
Ptychandra lorquinii var. *leucogyne* Felder & Felder; Gaede, 1931 : 320.

DESCRIPTION. ♂. Forewing length 24·2–25·1 mm, n = 4. *Facies*. Forewing costa weakly convex. Hindwing with slightly hooked tail on M_3 with acute not rounded end. Hindwing margin tending to be quadrate not circular. Upperside deep iridescent blue, darkened narrowly at margin. Cilia dark brown on forewing and light brown interrupted by dark brown at veins on hindwing. White subapical fleck and faint, pale blue antemarginal chevrons variably present on forewing. Forewing underside with four disjunct ocelli in cells *Rs* to M_3, that in cell *Rs* sometimes reduced and that in cell M_3 inset. Brand and hair pencil, type (b) (Pl. 1. fig. 2). Small black hair pencil in hindwing cell close to origin of *Rs* (Pl. 5, fig. 11). White origin of forewing black hair pencil, 2 mm × 0·8 mm. Ocelli having white pupil ringed with black, light brown, buff, dark brown and fringed anteriorly and marginally with diffuse pale violet wavy line. *Antennae.* Club dark brown with rufous tip. Shaft with uniform grey-brown scales dorsally, rufous ventrally with paler flecks. *Genitalia.* Similar to those (Text-fig. 3) of *schadenbergi*, with serrated valve tips. Uncus with smooth unnotched tip. Gnathi smooth without dorsal teeth but narrowing distally and hooked.

♀. Forewing length 24·6–27·8 mm, n = 4. Upperside predominantly off-white, dusted variably with brown basad. White forewing discal area extends to inner margin and hindwing white discal area extends to costa. Maximum convexity of forewing at about halfway along costa. Hindwing subquadrate with hooked tail at M_3, terminated acutely. Forewing costal and apical areas dark brown, broken by subapical white fleck, two-thirds distad on costa and postdiscal white bar running from half way along costa towards white submarginal spot in cell M_2. Faint brown ocelli in cells *Rs* and M_3 on forewing upperside. Upperside hindwing off-white with light brown submarginal area sometimes extending just beyond submarginal ocelli which are diffuse brown ringed with buff. Forewing underside with four discrete or almost discrete ocelli in cells *Rs* to M_3, that in cell *Rs* sometimes reduced and cell M_3 inwardly displaced. Ocellus in cell M_1, forewing, white-pupilled, ringed with brown, light brown, buff and brown, others, especially in M_2, more broadly white. Antemarginal lines dark brown, yellow-brown and dark brown and cilia light brown. *Antennae.* Similar to those of male.

DISTRIBUTION. Luzon, Samar, Negros, Cebu, Halmaheira. This is the only *Ptychandra* recorded from Cebu.

BIOLOGY. It has been observed (C. G. Treadaway, personal communication and specimens) that the two *Ptychandra* occurring on Luzon, *lorquinii lorquinii* and *leucogyne*, occupy different habitats. The more commonly taken species *lorquinii lorquinii* flies in secondary forest containing some primary areas while *leucogyne*, which is poorly represented in collections, occurs in glades in primary jungle. In the more commonly taken species males predominate but in *leucogyne* neither sex appears easily captured. This presumably reflects the more furtive habit of the latter species.

DISCUSSION. *P. leucogyne* has been confused with both *lorquinii* and *schadenbergi*. The males closely resemble *lorquinii lorquinii* and occur with this subspecies on Luzon. They are separated by habitat and distinguished easily by the number of forewing ocelli and the presence or absence of a hindwing brand. The hindwing tail and cell are significantly shorter and the forewing hair pencil is longer. The female was described as that of *schadenbergi* by Semper but has a wing and tail shape more characteristic of *lorquinii*. It may be conveniently distinguished from *schadenbergi* by the number of forewing ocelli and the extent of the white discal areas which in *leucogyne* reach to the inner margin of forewing and costa of the hindwing. Even strongly white-marked specimens of *schadenbergi* do not show this.

The wing scales of this species and *talboti* have a tendency to be multitoothed. In the hindwing subcostal ocellus, the area intensively studied, four and five pointed scales are normal but three pointed scales predominate in *lorquinii* and *schadenbergi*.

The original description (Felder, 1867) is of a specimen said to be taken in Halmaheira by Lorquin, while Semper (1886) states that *leucogyne* flies on Batjan. However, the facies of the lectotype is within the range of variation observed for *leucogyne* from Luzon and no other specimen of *Ptychandra* examined, except the lectotype of *P. leucogyne*, has been labelled as taken in the North Moluccas. Furthermore, Boisduval (1868) reports that Lorquin, the collector of the lectotype specimen, left San Francisco in 1857 to go to Luzon where he stayed for two years. He also took ship, apparently the 'Novara', from Manila later when he visited Celebes and Halmaheira. Luzon is a reasonable locality for this species and it is noteworthy that the Felders (1867) described several species (e.g. *Ergolis luzonia*, *Charaxes amycus*, *Euripus clythia*) from Luzon taken by Lorquin in the same publication as the description of *leucogyne*. It is thus possible that the lectotype was taken in Luzon and not Halmaheira as described. Semper's record of the species from Batjan may have originated from the specimen actually of *leucogyne* but figured as ♀ *schadenbergi* (Semper, 1886) which was taken in Bataan, Luzon.

MATERIAL EXAMINED.

Ptychandra leucogyne, lectotype ♀, HALMAHEIRA (*Lorquin*) (BMNH).

LUZON: Bataan, 1 ♀, 16.xi.81, 'Paratypus SMFL 19b' (described as *P. schadenbergi*) (SMN); Los Baños, 1 ♀, vii. (*B. P. Clarke*) (USMN); Montalban, 1 ♀, 30.iv.1911 (*A. E. Wileman*) (BMNH); Mt Makiling, 1500 ft, 8 ♂, 20.xi.1955, 3.viii.1956, 31.viii. 1966, 4.ix.1966 (*C. G. Treadaway*) (BMNH); Paete, 1 ♀, vi. (*B. P. Clarke*) (USNM); Tarlac 1 ♀ (*Browne*) (BMNH); 1 ♀ (BMNH). CEBU: Minglanilla, camp 7100 ft, 1 ♂, 1.x.1958, woodland (*J. N. Jumalon*) (BMNH). NEGROS: 1 ♂, lowlands, ii. 96 (*J. Whitehead*) (BMNH). SAMAR: Antiago Valley, 1 ♂ (*J. J. Mounsey*) (UM).

Ptychandra talboti Hobby **stat. n.**

(Text-figs 5a, b; Pl. 1, fig. 1; Pl. 3, fig. 9; Pl. 5, figs 25, 26)

Ptychandra schadenbergi talboti Hobby, 1940 : 220, pl. 4, figs 1, 2. Holotype ♀, BORNEO: Sarawak, Mt Dulit (BMNH) [examined].

DESCRIPTION. ♂. Forewing length 19·1–20·8 mm, n = 4. *Facies.* Upperside deep iridescent blue-purple with narrow darkened margins. Cilia short and white, interrupted by brown at veins, giving scalloped appearance. Forewing costa strongly convex. Forewing brand and hair pencil of type (a) (Pl. 1, fig. 1). Hair pouch below CuA_1 forewing absent. Hindwing quadrate, strongly excavate in cell M_2 and weakly in cells M_3, CuA_1 and CuA_2. Tail at M_3 weakly hooked and obtusely terminated. Hindwing with prominent black hair pencil (Pl. 3, fig. 9) arising in cell at base of *Rs* and lying across cell. Underside forewing with four submarginal ocelli in cells Rs–M_3, with those in cells *Rs* and M_3 slightly reduced. Costal ocellus of hindwing only slightly larger than remaining ocelli but inwardly displaced. Ocelli discrete with blue-white pupil ringed with black, mid-brown and dark brown and fringed incompletely, interiorly and marginally with a faint mauve line. Marginal lines dark brown, light brown, dark brown and faint mauve. *Antennae.* Club slightly flattened, rufous, darker dorsally. Shaft black-scaled, with ventral white flecks basal to each segment. *Genitalia* (Text-fig. 5a). Gnathi toothless and weakly hooked at tip. Uncus smooth and rounded distally. Valvae without strongly sclerotized distal processes but with weakly toothed and serrated tips. Aedeagus (Text-fig. 5b) poorly developed, with only small areas of sclerotization.

♀. Forewing length 21·1 mm. *Facies*. Wing shape similar to male. Upperside forewing ground colour chocolate brown with white costal bar divided into three by darkened veins and extending to M_2. Subapical white fleck absent or vestigial. Discal white patch not extending to tornus but pointed distally. Submarginal white chevrons absent. Fringes dark brown. Hindwing discal area white, extending to costa and submarginal ocelli. Ocelli visible with eye spots of those in cells M_3 and CuA_1 sharply defined. Fringes greyish interrupted by smokey brown. Underside forewing costal band extending to M_3. Discal white patch as upperside. Four subequal submarginal ocelli in cells *Rs* to M_3 in band sloping to tornus, fringed inwardly and marginally by a violet-tinged white band. Hindwing with full series of well defined ocelli with that in cell *Rs* enlarged and displaced inwardly. Discal area white, traversed by three much interrupted dark brown bands. Ocelli discrete, with white pupil ringed successively with dark brown, buff and mid-brown and externally fringed with diffuse white line. *Antennae*. Uniformly rufous except club darkened dorsally. Club slightly flattened.

DISTRIBUTION. Borneo.

BIOLOGY. Taken in or close to primary montane forest.

DISCUSSION. Only three female specimens ascribable to this species were examined. The female holotype from Mt Dulit was meticulously described by Hobby (1940). The specimens from Mt Kinabalu were considerably less brown dusted than the former, the brown marginal shading extending into the discal area beyond the submarginal ocelli in contrast to that of the Mt Dulit specimen in which it extends to halfway inward from the margin towards the submarginal ocelli. The Mt Kinabalu specimens also differed by having much paler discal areas on the underside with reduced brown banding and a slightly different hindwing shape, that of the holotype being more rounded with a less hooked tail and similar to that of *schadenbergi*. These differences are as extreme as the variation found within the series of female *schadenbergi* or *leucogyne* examined, but it may be that divergence to at least subspecific level has occurred on the Bornean mountains which will be revealed by examination of a longer series.

This species is considerably smaller than the Philippine *Ptychandra* and is thus distinguished from these biometrically by many of the parameters used. It superficially resembles *leucogyne*, particularly in general facies and possession of four forewing ocelli. It can be distinguished in the male by its size and secondary sexual characters, particularly the lack of the hair pouch below CuA_1. Despite the small size of this species, the forewing hair pencil is exceeded in length only by that of *mindorana*. In the female the white discal areas never reach the inner margin or costa, being margined by a brown area. In both sexes the forewing costa is markedly convex, not almost straight as in *leucogyne*. It is the only *Ptychandra* species to have four not five rings to the hindwing ocelli. The genitalia, particularly the aedeagus, differ considerably from those of other members of the genus. They are more delicate, less spiny structures and the aedeagus is reduced to a poorly defined chitinous fold.

MATERIAL EXAMINED.

Ptychandra schadenbergi talboti, holotype ♀, SARAWAK: 4600 ft, 17.x.32 (*B. M. Hobby & A. W. Moore*), moss forest, Oxford University Expedition (BMNH).

BORNEO: Mt Kinabalu, between 5500–6000 ft, 3 ♂, 1 ♀, 25.vii, 29.vii, 2.viii, 3.ix, 1965 (*H. J. Banks, H. S. Barlow & J. D. Holloway*) (BMNH); Mt Kinabalu, 5500 ft, 1 ♂, 1 ♀, 22, 24.iii.1974 (*Shoichi Iwanaga*) (Iwanaga coll., Osaka, Japan) (examined from colour photographs); Mt Trus Madi, 7800 ft, 1 ♂, 3.viii.1956 (BMNH).

Ptychandra negrosensis sp. n.

(Pl. 2; fig. 6; Pl. 3, fig. 12; Pl. 5, figs 27, 28)

DESCRIPTION. ♂. Forewing length 28·7 mm. *Facies*. Forewing slightly falcate with maximum convexity two-thirds distad on costa. Upperside deep iridescent blue with prominent broad rhomboidal white apical fleck, diffuse white antemarginal chevrons on forewing, appearing as pale blue wedge, broader apically, and white diffuse antemarginal line in hindwing. Small, purple ocellus in cell CuA_2. Forewing hair pencil and brand structure type (c) (Pl. 2, fig. 6) with pouched hair pencil and white mealy scales in brand. Hindwing quadrate, prominently tailed at M_3 with excavation of cell M_2 much greater than of cell M_3, producing a strong hook. Tail terminated bluntly. Prominent black hair pencil (4·6 mm) in cell at origin of *Rs* (Pl. 3, fig. 12). Underside forewing dark brown with lighter brown transverse wavy lines inwardly, ocelli in cells M_1–M_3, that in M_1 reduced. Antemarginal chevrons as upperside in shape, violet-tinged white, well-marked with prominent apical fleck. Slight metallic marbling in underside discal area. Full series of hindwing submarginal ocelli, with cell *Rs* ocellus inwardly displaced and much enlarged. Ocelli in cells M_1 and M_2 contiguous, others discrete; white pupilled ringed with mid-brown, light brown, buff and mid-brown lines and with diffuse violet band fringing ocelli, inward and marginally. *Antennae*. Club not well defined but with dark brown tip. Shaft grey dorsally, rufous exteriorly and paler ventrally. *Genitalia*. Gnathos smoothly curved distally with small dorsal spines extending about one-third of length. Uncus unnotched at end. Valves with two heavily toothed terminal processes similar to Text-fig. 2 but without middle process.

♀. Forewing, length 34·3 mm, not falcate. *Facies*. Upperside forewing brown with broad, white, entire subapical band running from half way along costa to anal angle. Subapical white fleck present. Hindwing prominently tailed at M_3 as in male. Upperside hindwing brown with dull brick red discal area. Two forewing ocelli in cells M_1 and M_2, almost conjoined. Submarginal ocelli visible on upperside hindwing, particularly cells M_2 and M_3, ringed with rusty brown and white pupilled. Underside discal area whitish with brown transverse wavy lines. White patch at costa distad of cell *Rs* ocellus, which is enlarged and displaced inwardly. Ocelli in hindwing cells *Rs* to $1A + 2A$ with white pupil ringed with mid-brown, light brown, buff and mid-brown lines and visible on upperside. Ocellus in cell M_3 displaced outwardly those in cells M_1 and M_2 contiguous.

DISTRIBUTION. Negros.

BIOLOGY. This species was taken in rain forest in a thick undergrowth of ferns and vines on an overcast day. It was feeding from cut grass stems in the company of amathusiids and *Neptis* species (*J. N. Jumalon*, personal communication).

DISCUSSION. This new species is easily distinguished from other *Ptychandra* by its large size. In the two specimens known the forewing ocellar band is reduced to two or one spot only. The prominent hindwing band distinguishes the male from other species while the female can be told by the very broad unbroken forewing subapical white band and the reddish discal area of the hindwing upperside. The

♂ genitalia are similar to those of southern *lorquinii* and without a series for comparison cannot be confidently distinguished.

MATERIAL EXAMINED.

Holotype ♂, NEGROS: Bayawan, x. 1963 (*J. N. Jumalon*) (BMNH).
Paratype (allotype) ♀, NEGROS: Bayawan, x. 1963 (*J. N. Jumalon*) (BMNH).

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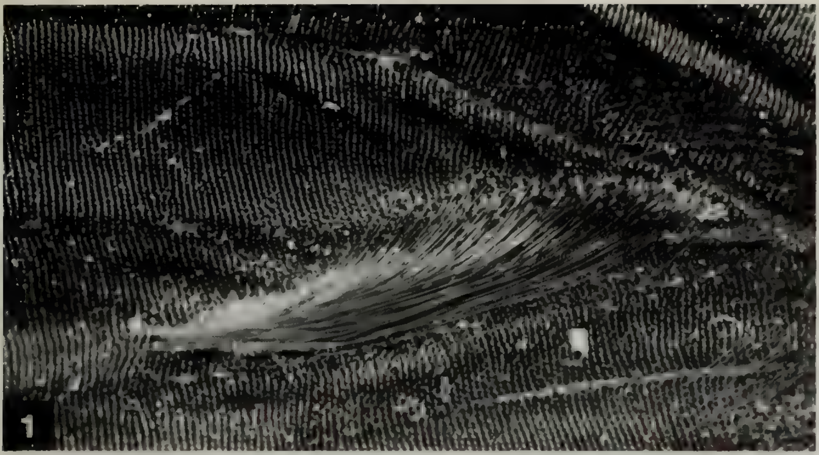
PLATE 1

Forewing male brand structures in *Ptychandra*

Fig. 1. Type (a), *talboti*.
Fig. 2. Type (b), *leucogyne*.
Fig. 3. Type (c), *lorquinii lorquinii*.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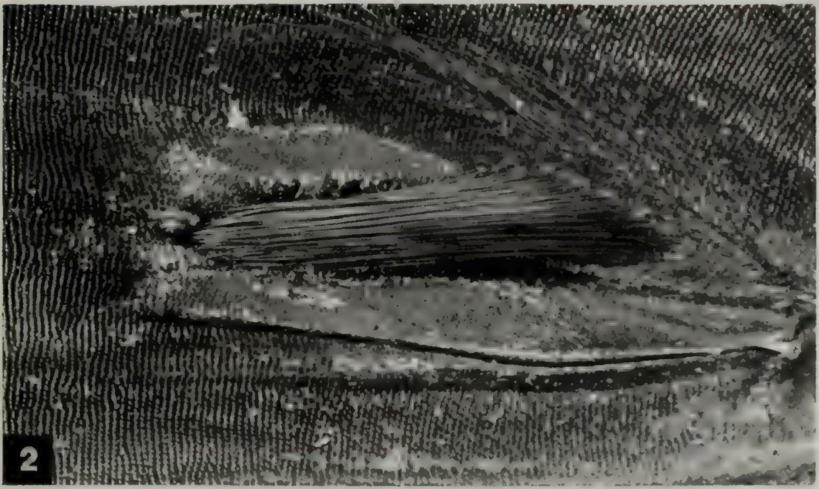
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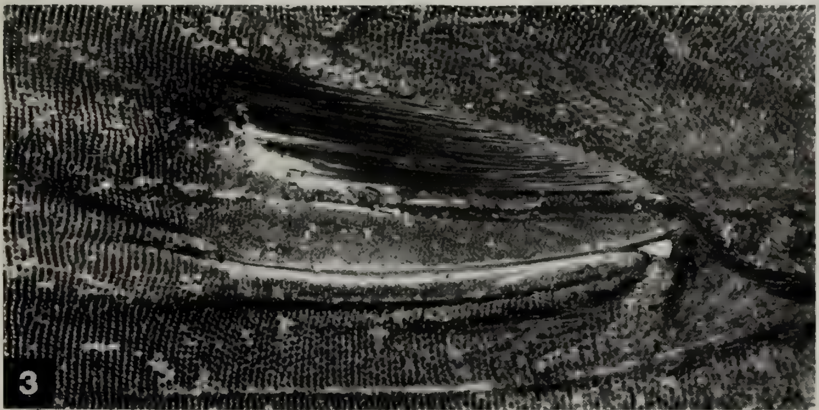
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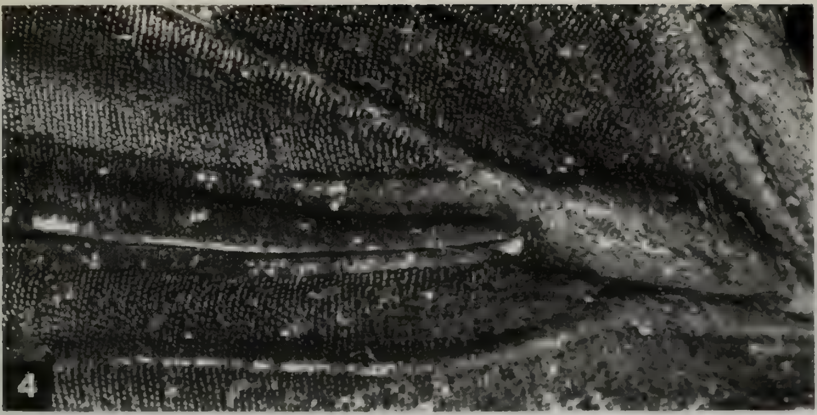
PLATE 2

Forewing male brand structures in *Ptychandra*

Fig. 4 *schadenbergi.*
Fig. 5. Type (b), *mindorana.*
Fig. 6. Type (c), *negrosensis.*



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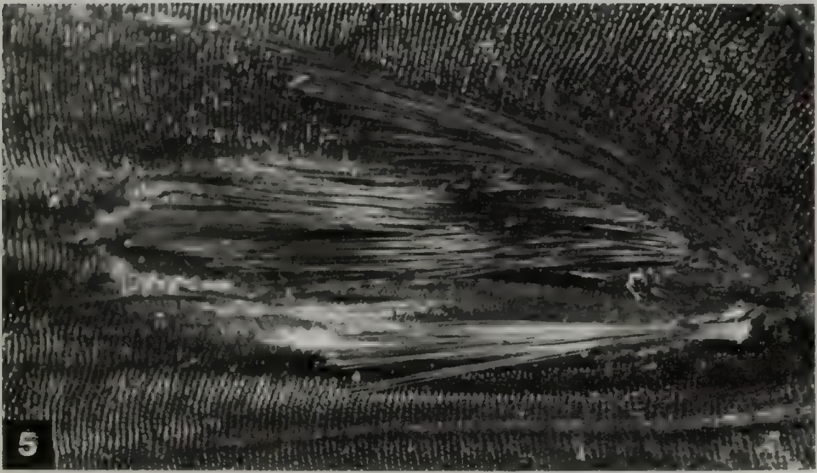

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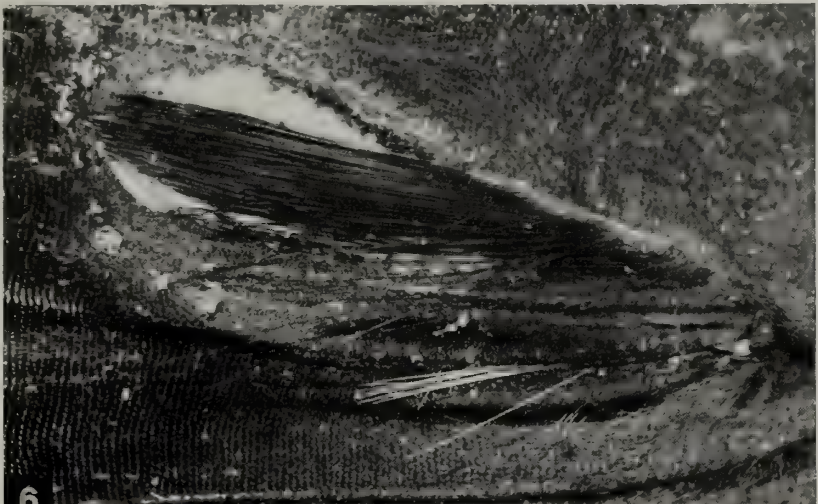

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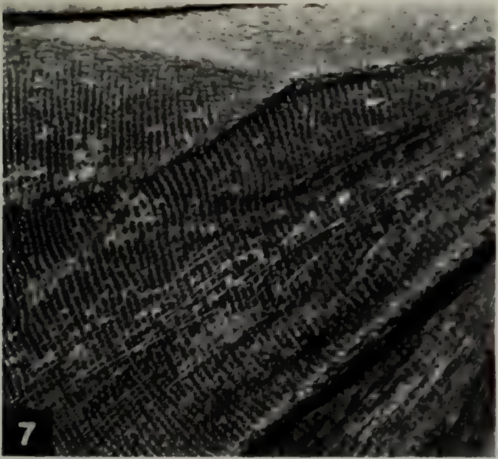
PLATE 3

Hindwing male brand structures in *Ptychandra*

FIG. 7. *lorquinii lorquinii.*
FIG. 8. *schadenbergi.*
FIG. 9. *talboti.*
FIG. 10. *mindorana.*
FIG. 11. *leucogyne.*
FIG. 12. *negrosensis.*



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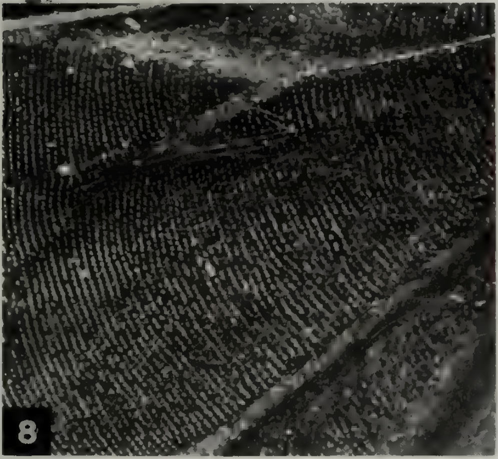

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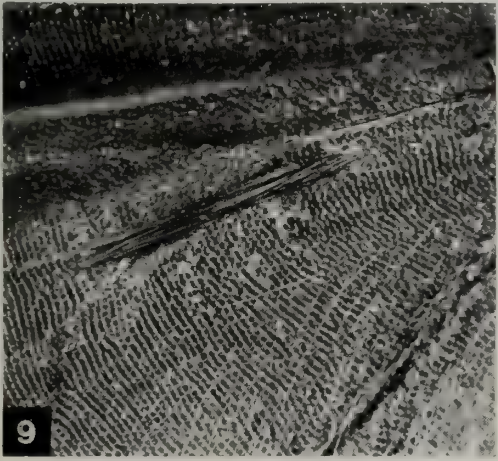

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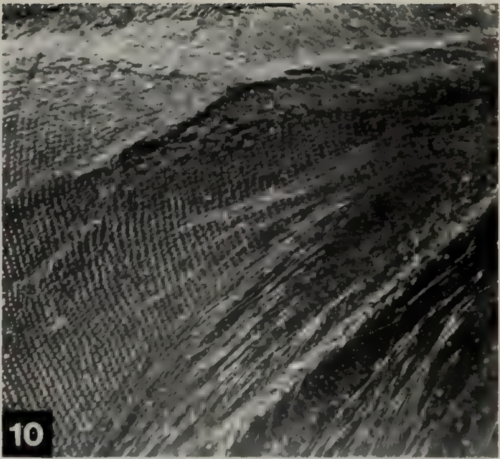

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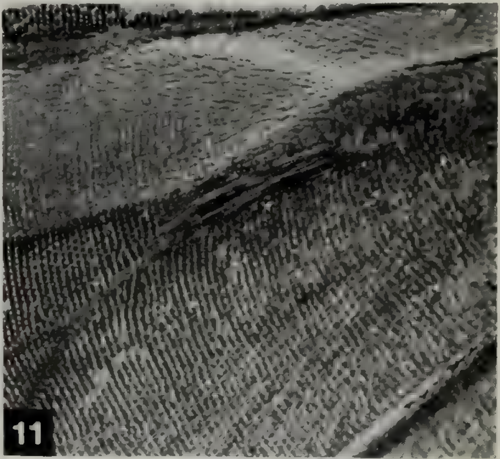

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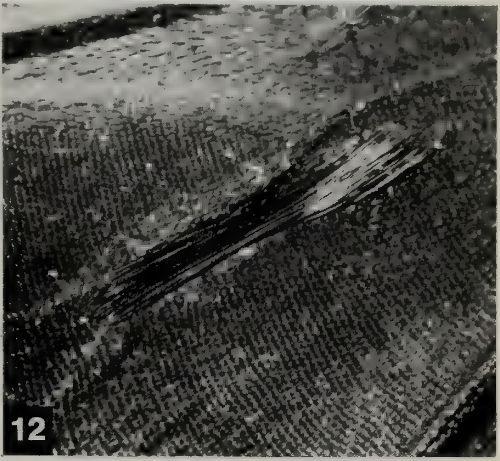

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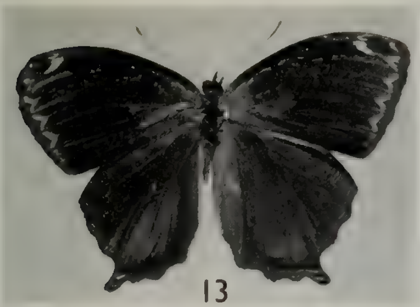
PLATE 4

Fig. 13. *Ptychandra lorquinii lorquinii*, lectotype ♂.
Fig. 14. *P. lorquinii lorquinii*, ♀.
Fig. 15. *P. lorquinii plateni*, ♀.
Fig. 16. *P. lorquinii bazilana*, ♀.
Fig. 17. *P. lorquinii leytensis*, ♀.
Fig. 18. *P. lorquinii*, ♀, Bohol.
Fig. 19. *P. schadenbergi*, ♂.
Fig. 20. *P. schadenbergi*, ♀.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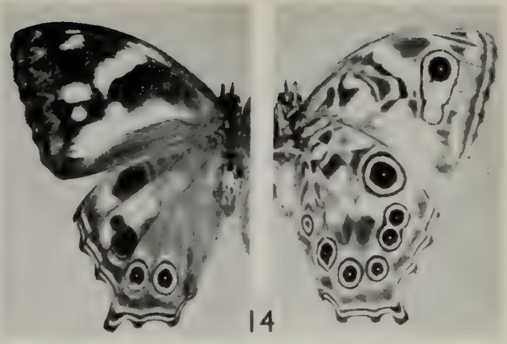
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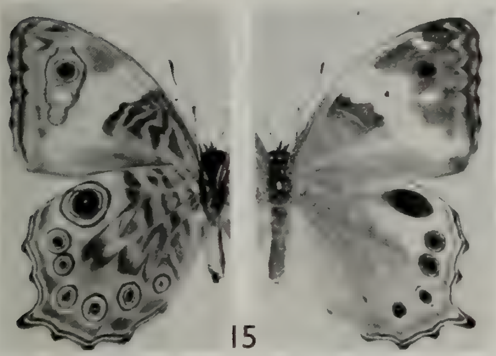
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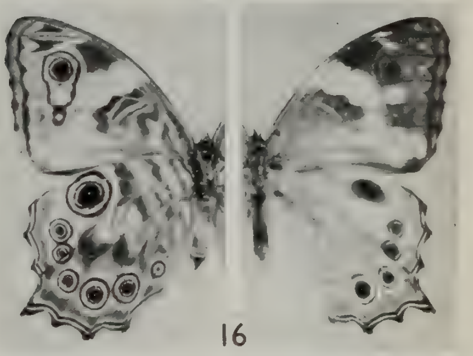
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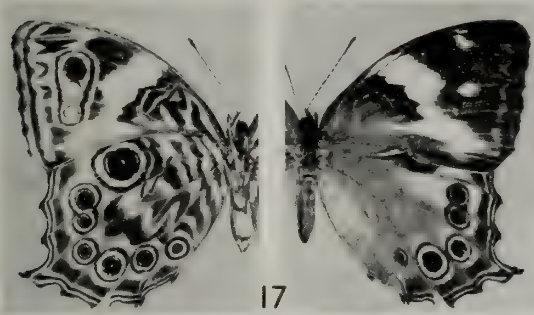
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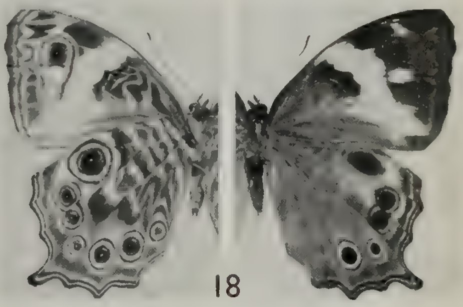
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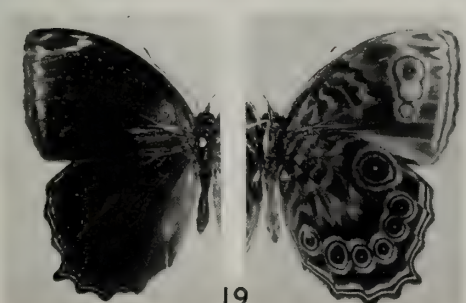
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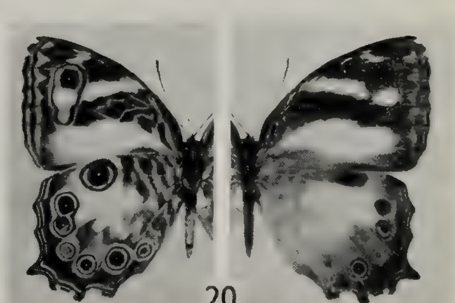
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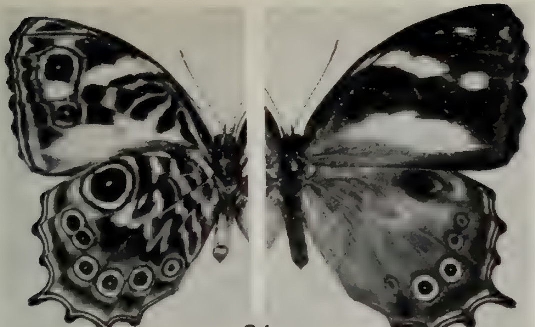
PLATE 5

Fig. 21. *Ptychandra mindorana*, ♀.
Fig. 22. *P. mindorana*, ♂.
Fig. 23. *P. leucogyne*, ♂.
Fig. 24. *P. leucogyne*, lectotype ♀.
Fig. 25. *P. talboti*, ♂.
Fig. 26. *P. talboti*, ♀, Mt Kinabalu.
Fig. 27. *P. negrosensis*, holotype ♂.
Fig. 28. *P. negrosensis*, allotype ♀.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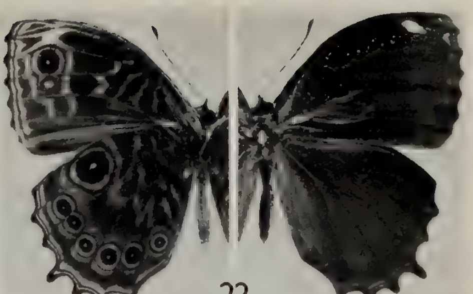
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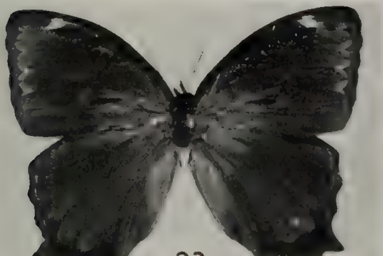
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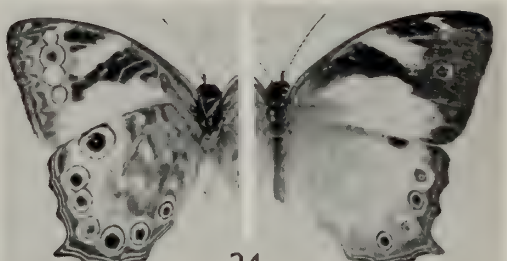
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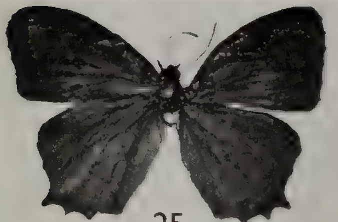
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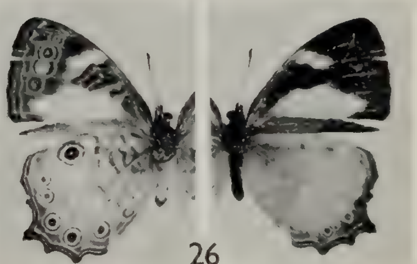
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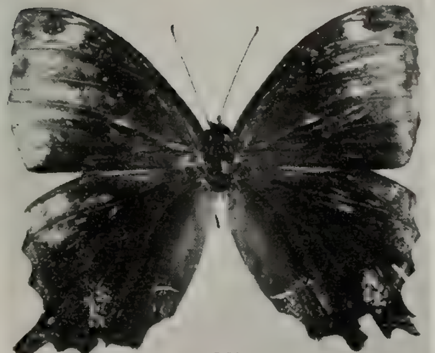
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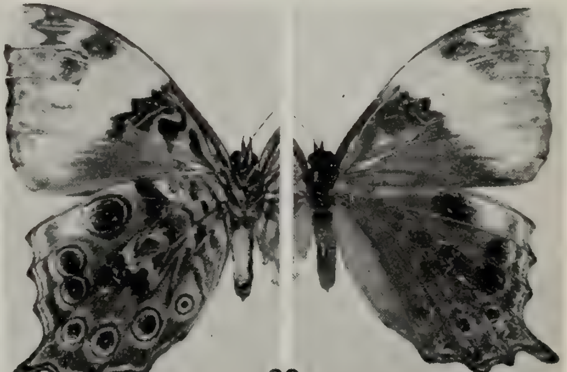
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BY

GADEN SUTHERLAND ROBINSON

Pp. 253–300; 16 *Plates*; 10 *Text-figures*

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A TAXONOMIC REVISION OF THE TINISSINAE OF THE WORLD (LEPIDOPTERA : TINEIDAE)

By G. S. ROBINSON

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SYNOPSIS

The subfamily Tinissinae (Lepidoptera) and its constituent genera *Tinissa* Walker and *Leptozancla* Meyrick are redescribed and redefined. Thirty-four species are described, sixteen of them new; one new subspecies is described and two new synonyms are established. Two species are transferred to *Tinissa* from other genera. Keys to the species are given and the possible phylogeny of the subfamily is discussed.

INTRODUCTION

THE subfamily Tinissinae was erected by Gozmány & Vári (1973). It contains two genera, *Tinissa* Walker and *Leptozancla* Meyrick, with thirty-two and two species respectively. The group is exceptional within the Tineidae in that the juxta of the male is usually extensively modified and usurps the function of the valves which are actually lost in *Leptozancla*. This feature was not noticed by Diakonoff (1967) or Gozmány & Vári (1973).

All primary types except three have been examined; in these three cases paralectotypes were available or the primary type had been adequately described and illustrated.

Size measurements given are double the distance from the wing apex to the centre of the thorax.

The terminology used in descriptions of male and female genitalia follows Klots (1956).

Genitalia dissections were made and subsequently mounted in conventional fashion; in this group, however, it is necessary to separate the uncus from the valve-juxta complex in order to view it from the ventral side. Male genitalia dissections therefore involved cutting the vinculum laterally and severing the membrane anterior to the tip of the subscaphium and 'unrolling' the genitalia; the uncus is thus viewed from the ventral side and the valve-juxta complex and saccus from the dorsal side. Chlorazol Black E was used for staining preparations and Euparal was employed as a mounting medium.

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ABBREVIATIONS

BMNH	British Museum (Natural History).
MAK	Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn.
MNHN	Muséum National d'Histoire Naturelle, Paris.
RNH	Rijksmuseum van Natuurlijke Historie, Leiden.
TM	Transvaal Museum, Pretoria.
USNM	National Museum of Natural History, Smithsonian Institution, Washington.

CHECKLIST OF TINISSINAE

- ***TINISSA*** Walker
    - *POLYMNESTRA* Meyrick
  - ***albipuncta*** **sp. n.**
  - ***amboinensis*** **sp. n.**
  - ***araucariae*** **sp. n.**
  - ***bakeri*** **sp. n.**
  - ***baliomicta*** Meyrick
  - ***chalcites*** **sp. n.**
  - ***chaotica*** **sp. n.**
  - ***cinerascens*** Meyrick
  - ***convoluta*** **sp. n.**
  - ***cultellata*** (Gozmány & Vári) **comb. n.**
  - ***distracta*** Meyrick
  - ***dohertyi*** **sp. n.**
  - ***errantia*** **sp. n.**
  - ***eumetrota*** Meyrick
  - ***goliath*** **sp. n.**
  - ***indica*** **sp. n.**
  - ***insignis*** Zagulajev
  - ***insularia*** **sp. n.**
  - ***kidukaroka*** **sp. n.**
  - ***krakatoa*** **sp. n.**
  - ***palmodes*** Meyrick
  - ***parallela*** **sp. n.**
  - ***philippinensis*** **sp. n.**
  - ***phrictodes*** Meyrick
  - ***poliophasma*** Bradley
  - ***polysema*** Zagulajev
  - ******polystacta*** (Meyrick)
    - †*perilithias* (Meyrick)
  - ***rigida*** Meyrick
    - *chloroplocama* Meyrick **syn. n.**
    - *heterograpta* Meyrick **syn. n.**
  - ***ruwenzorica*** Gozmány
  - ***spaniastra*** Meyrick
  - ***torvella torvella*** Walker
  - ***torvella mysorensis*** **subsp. n.**
  - ***transversella*** (Walker) **comb. n.**
- ***LEPTOZANCLA*** Meyrick
    - *PHILAGRIAS* Meyrick
  - ******talaroscia*** Meyrick
  - ***zelotica*** (Meyrick)

*paralectotype only examined
†holotype not examined

GEOGRAPHICAL DISTRIBUTION

The subfamily Tinissinae contains exclusively Old World taxa. The genus *Leptozancla* is Ethiopian; its two species are known from montane localities in Kenya and Ethiopia. *Tinissa* contains five Ethiopian species; four of these are known from montane localities in Uganda and Ethiopia and one is only known from South Africa. The remaining twenty-seven *Tinissa* species are Indo-Australasian, having been collected within a zone, the western limits of which are Sri Lanka (Ceylon), south India and Sikkim, the eastern limits Taiwan, the Philippines and the Solomon Islands, and the southern limit Queensland. Several species have extensive distributions (e.g. *Tinissa insularia*, *T. rigida*) but many (e.g. *T. krakatoa*, *T. chaotica*) are known only from a single locality. It is likely that most species are under-collected. Of the 211 specimens of *Tinissa* known to me, representing 33 taxa, seven species account for 155 specimens while 15 taxa are represented by a single specimen. It is, therefore, likely that there are many more species of Tinissinae to be discovered and that present distributional records are incomplete. From the imperfect records of distribution presently available, there is a concentration of species in the Papuan region. Only five species are known from the Asian mainland. Nine species are recorded from New Guinea and fifteen from Buru to the Solomon Islands.

BIOLOGY

All Tinissine species, with the exception of *Leptozancla talaroscia* and *Tinissa polystacta*, have been collected in tropical rain forest and their distributions seem to be restricted to this habitat type within about 20° north and south of the equator. No published host records exist for this group, but Meyrick, in a manuscript notebook preserved in the Microlepidoptera Section, BMNH, records (notebook no. 12, page 58) *Tinissa torvella* 'on fungus on bamboo'. Meyrick's collection contained *T. torvella*, *T. indica* and *T. insularia* determined as '*torvella*' so it is uncertain as to which species this record really relates. It is enough to suggest, however, that the group is fungivorous. Specimens of *Tinissa* have been collected in every month of the year both north and south of the equator and the species probably breed continuously. Specimens are generally rare (see comments in 'Geographical Distribution').

PHYLOGENY

No fossil evidence is available to strengthen any phylogenetic assumptions made about this group and only morphological and geographical evidence is here taken into account. I consider the Tinissinae to have originated in Africa where the remaining species are all markedly dissimilar and where all the species with a 5-segmented maxillary palp are found. Reduction of the number of maxillary palp segments is considered to have been a single and early occurrence in the history of the group, antedating the migration of an early *Tinissa* stock to Asia. *Tinissa phrictodes* is rather different from the other Asian species; the structure of the uncus is similar to that of *T. polystacta*, suggesting that it is an early derivative from the first 'African-type' immigrant stock.

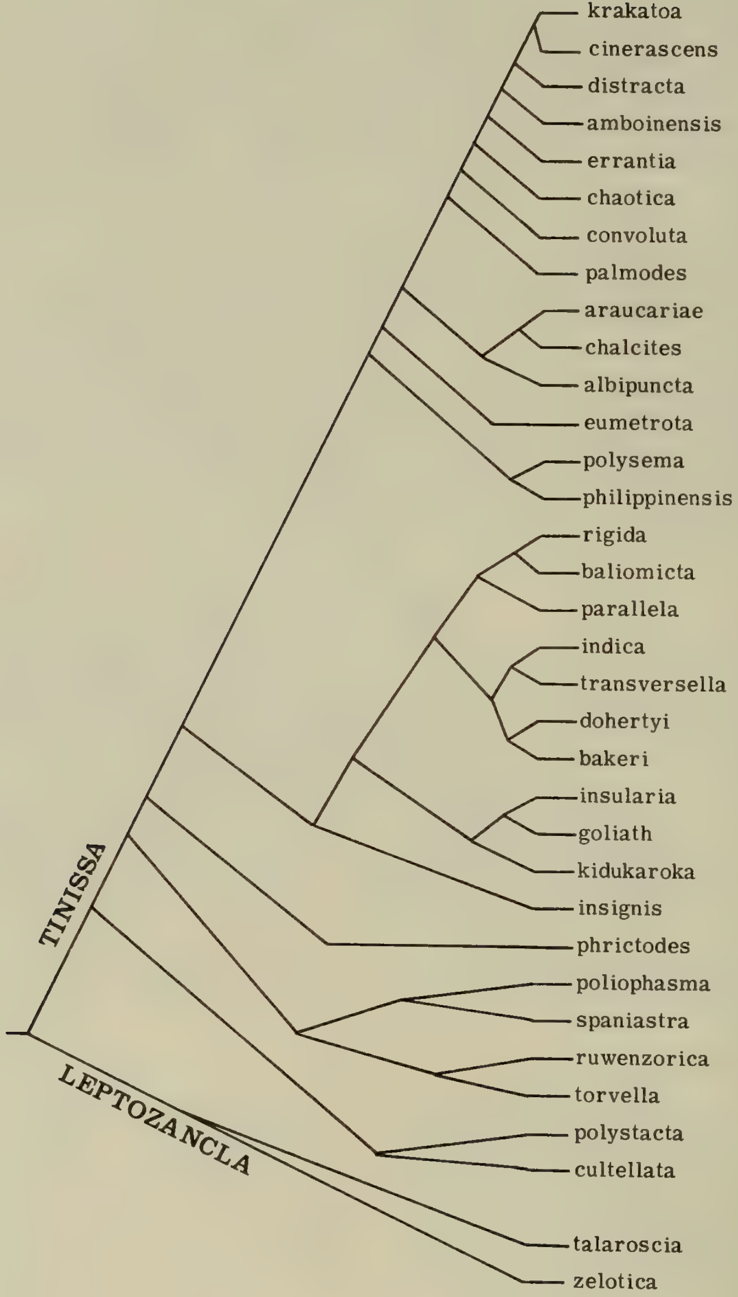

krakatoa
cinerascens
distracta
amboinensis
errantia
chaotica
convoluta
palmodes
araucariae
chalcites
albipuncta
eumetrota
polysema
philippinensis
rigida
baliomicta
parallela
indica
transversella
dohertyi
bakeri
insularia
goliath
kidukaroka
insignis
phrictodes
poliophasma
spaniastra
ruwenzorica
torvella
polystacta
cultellata
talaroscia
zelotica
TINISSA
LEPTOZANCLA

FIG. 1. Suggested phylogeny of the Tinissinae.

The occurrence of 'pouches' in the female eighth tergite, while a useful diagnostic character, seems to be of little phylogenetic significance. Species with pouches show little similarity to each other when other characteristics are considered and the structure of the pouches suggests that they have arisen independently on several occasions. Two major groups of Asian species are recognized. The first group is of four quite closely related species (*T. cinerascens*, *distracta*, *krakatoa*, *amboinensis*), remarkable for the narrowness of the male saccus, which are grouped with a series of ten species of progressively divergent genital morphology but generally with a pale wing pattern. This group is probably monophyletic and contrasts with the darker-winged second group of eleven species which form three quite well-defined species-groups. I consider *Tinissa torvella* to be a remnant of a separate invasion of Asia of a line otherwise represented by *T. ruwenzorica*. I consider *Leptozancla* to be monophyletic from the earliest Tinissine stock; its two species are widely divergent. Text-fig. 1 illustrates my concept of the phylogenetic relationships of the Tinissinae. The affinities of the subfamily remain obscure and I am, at this stage, content to think of the Tinissinae as having arisen from a generalized Tineoid-Psychoid stock.

MORPHOLOGY

The morphology of the Tinissinae is described in detail below but comment is required on the peculiar structure of the male genitalia. Text-fig. 2 is a schematic diagram of the male genital structures of a Tinissine. Features which should be noted are the fusion of an enormous juxta with the valve and the presence of a process which arises from the membrane separating the internal surfaces of the valve and juxta. The labis should be noted, a posterior extension of the transtilla, usually close to or in contact with the aedeagus. The characteristic form of the uncus and subscaphium are also shown.

Earlier authors have had different interpretations of male Tinissine genitalia; the following table equates the terminology used.

Diakonoff (1967)	Gozmány & Vári (1973)	Present work
valva	ventral lobe of valve; hairy clavate appendage	juxta
anellus lobe; triangular hairy process	dorsal lobe of valve	process arising from membrane between valve and juxta
transtilla; slender process directed rostrad	transtillae	apodeme of valve
elevated bristly knob	anellus with two lobate arms	valve
—	serrate cornuti	spicules on outer surface of aedeagus
tegumen	uncus	uncus

It is apparent that the valve-juxta complex of the Tinissinae has not been noted by earlier authors who have interpreted the complex as being wholly composed of the valves. In most species, a membranous line clearly separates the valves and the juxta and there is no evidence of a medioventral division of the sclerotized portions of the complex as would be expected if the complex were composed of ventrally extended valves. In several species (e.g. *Tinissa torvella*), the juxta is reduced and not closely fused with the valves, but in several species the degree of fusion is such that it is difficult to trace the margin of the juxta.

In the female genitalia of *Tinissa spaniastra*, Gozmány & Vári's (1973) 'minute phylliform signum' is a foreign body, probably a scale.

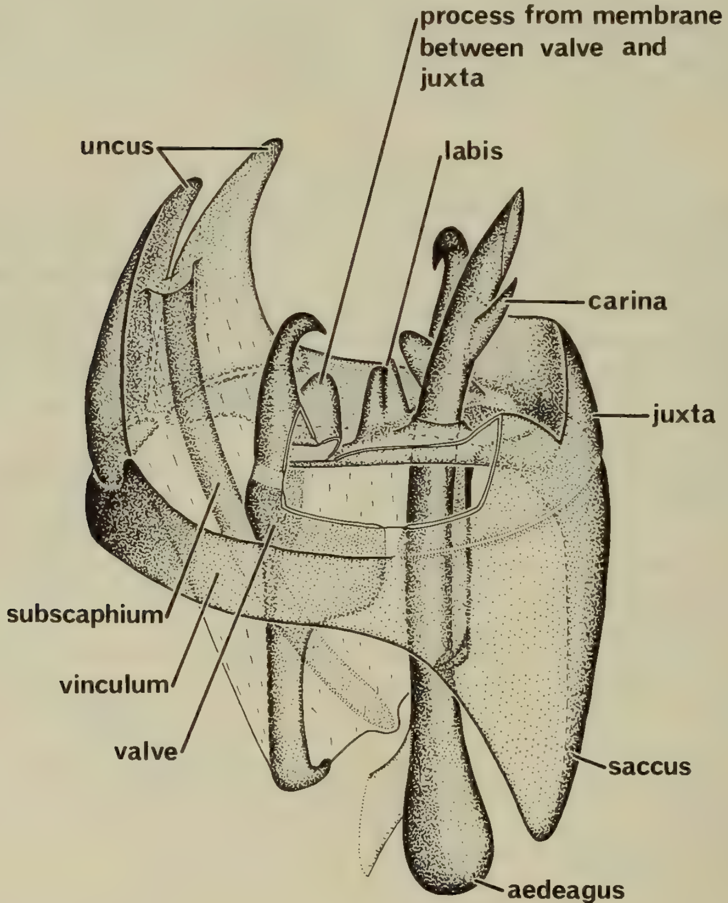

process from membrane between valve and juxta
uncus
labis
carina
juxta
subscaphium
vinculum
valve
saccus
aedeagus

FIG. 2. Schematic diagram of male genitalia of a Tinissine.

TINISSINAE Gozmány & Vári

Tinissinae Gozmány & Vári, 1973, *Transv. Mus. Mem.* **18** : 84. Type-genus: *Tinissa* Walker, 1864.

Frons loosely covered with short, pale scales, predominantly forward-directed, convergent in midline of head. Mandible present (presence uncertain in *Leptozancla*), thinly sclerotized, four times as long as broad at base. Proboscis almost as long as second segment of labial palpus, the two galeae only loosely associated, if at all; epipharynx small, triangular, protuberant (proboscis absent and epipharynx reduced in *Tinissa polystacta*). Maxillary palpus with five short segments, folded (*Leptozancla*, *Tinissa polystacta*, *T. cultellata*), or three segments, first short, second twice as long, third 1·5 times as long as second. Three-segmented maxillary palpus with conspicuous tuft of divergent pale scales from terminal segment. Labial palpus with three segments, second and third approximately same length, first about one-third length of second; terminal segment upturned to about 60°, second segment with ventral tuft of elongate scales projecting anteriorly and with lateral bristles. Antenna extending to about one-half of fore wing costa in *Tinissa*, almost to or to apex in *Leptozancla*, ♂ with elongate cilia (Pl. 1, fig. 1), ♀ cilia shorter (Pl. 1, fig. 2) (cilia very long in *Tinissa chaotica*, reduced in length or absent in *Leptozancla zelotica*, *Tinissa ruwenzorica*, *T. poliophasma*, *T. spaniastra*; cilia short but dense in *Leptozancla talaroscia*). Scape with stiff downward-pointing pecten. Fore wing (Text-fig. 3) brownish, with or without pale (usually white or cream) spots and/or transverse striae, somewhat rectangular (narrow, apex oblique in *Leptozancla talaroscia*), 5–15 mm in length; M present or absent in cell; R_5 to apex or just on to termen; R_4 and R_5 separate, stalked or completely fused. With (*Tinissa*) or without (*Leptozancla*) elongate oval patch (Pl. 1, fig. 3) of small, flat, ovate scales (Pl. 1, fig. 4) on ventral surface of wing between A_{1+2} and posterior margin. Hind wing with patch of rough, pale scales opposite fore wing patch, anterior to $Sc + R_1$ (absent in *Leptozancla*). Venation usually complete but M sometimes absent from cell. Female frenulum with two or three spines; if three, one may be shorter than other two (♀ of *Leptozancla* unknown). Hind tibia with conspicuous distal hair tuft or with smooth broad scales, first hind tarsal segment smooth-scaled (with rough, raised scaling in *Tinissa spaniastra*); mid tibia with two oblique brownish transverse bands (absent in *Tinissa cultellata*) on outer face.

GENITALIA ♂. Simple, pouch-shaped corema (Pl. 7, fig. 47) present in tergosternal membrane (absent in *Tinissa polystacta*, *T. phrictodes* and *T. chaotica*). Eighth segment well sclerotized, sternite with pair of lateral processes in *Tinissa torvella* and *T. ruwenzorica*. Saccus always large and conspicuous though sometimes narrow; vinculum extending dorsally to form an almost complete ring, tips separated by membrane. Tegumen and gnathos absent. Uncus completely divided, a pair of lobes attached to vinculum and each other by membrane (fused with vinculum in *Leptozancla zelotica*, *Tinissa cultellata* and *T. polystacta*); shape of lobes and presence or absence of processes or invaginations highly diagnostic at species level. Juxta large, closely appressed to valves, diversely modified and in many species taking over function of valves. Valves usually reduced, not as diversely shaped as juxta, absent in *Leptozancla*. Variously shaped and modified process arising from membrane between valve and juxta present in most *Tinissa* species, absent in *Leptozancla*. Labides present, usually a pair of lobes, sometimes fused, dorsal to aedeagus, or strongly developed, forming posteriorly directed spines (*Leptozancla*); in several species pair of labides lobes ventral to aedeagus; labis absent in a few species. Subscaphium elongate, extending from edge of anal orifice to proximity of base of valves, usually narrow, sclerotized, conspicuous; in two species subscaphium broadened and laterally evaginated to form a pair of posteriorly directed spined processes. Aedeagus of various shapes and sizes, with or without ventral carina near apex, cornuti absent; one species (*Tinissa spaniastra*) with a line of fine spicules on outer surface of aedeagus.

GENITALIA ♀. Seventh tergite with posterior medial lobe in several species. Eighth sternite variously modified with posterior and anterior emargination, keel-shaped in several species, often setose, with or without conspicuous setae at posterior margin. Ostium similarly diverse, at various angles to plane of eighth sternite, in several species with marked emargination of ventral lip. Antrum always present, sclerotized, often divided into two sections by membranous zone at point of junction with ductus seminalis although in several species sclerotization is continuous. Ductus bursae thin-walled but strengthened by regular transverse constrictions which may, additionally, be rugose with fine superficial pimpling; ductus bursae anteriorly with a single loop to the right. Corpus bursae with extremely thin walls, without signum. Eighth tergite variously modified; with or without posterior medial emargination; with or without various pouch formations in tergite wall or at anterior margin; with transverse ridging in *T. cultellata*; more or less setose, a row of setae of varying degrees of conspicuousness at posterior margin; with or without evagination of ventral surface to form lateral flaps around base of ovipositor. Ovipositor elongate, apophyses posteriores almost reaching tips of apophyses anteriores when ovipositor extruded; lightly sclerotized region anterior to anal papillae extending to posterior fold of ovipositor with fine transverse ridging on ventral surface.

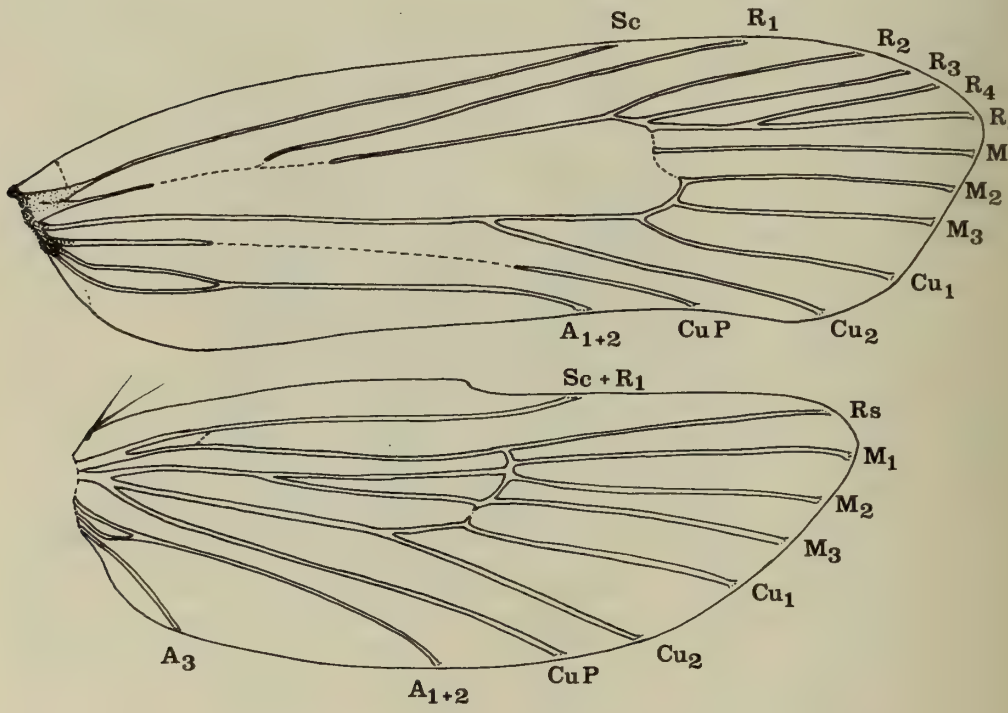


FIG. 3. Venation of *Tinissa torvella torvella* Walker, ♀, Sri Lanka.

Remarks. Intraspecific variation in species represented by long series is quite limited within this group but specimens may be variable in size (e.g. *Tinissa insularia*); females are generally larger than males. Venation is variable: R_4 and R_5 in the fore wing may be separate, stalked or fused in *Tinissa torvella*. The number of spines of the female frenulum may be two or three in the same species; one of three spines may be shortened. Specimens of *T. torvella* from Sri Lanka (Ceylon) collected in 1970 have the fore wings blackish brown with a purplish sheen. Older material is distinctly faded, a dull medium brown. It is likely that all older material described in this paper is faded to some extent. Aberrant specimens have been encountered; the holotype of *T. palmodes* has asymmetric hind wing venation and a specimen of *T. baliomicta* has deformed genitalia and abdomen (genitalia slide no. W 02). A female specimen of *T. insularia* has deformed genitalia and possibly exhibits gynandromorph characteristics in the elongation of the left side of the seventh segment. In several species there is distinct correlation between the shape and size of the aedeagus and of the ostium and antrum. An emargination of the ventral lip of the ostium accommodates the carina of the aedeagus. The patch of raised scales anterior to $Sc + R_1$ on the hind wing is often worn off or obscured by the fore wing. Gozmány & Vári (1973 : 84) suggest that the female lacks a corethrogyne, a dense tuft of scales from the seventh segment surrounding the ovipositor, but I have found a corethrogyne in all species examined. The apophyses anteriores apparently arise from the eighth sternite in this group.

Key to male Tinissinae based on genitalia

Males of *polysema*, *philippinensis*, *insignis*, *araucariae*, *palmodes*, *eumetrota*, *convoluta*, *krakatoa*. *transversella*, *dohertyi*, *goliath*, *kidukaroka* and *poliophasma* are not known.

1 Valve present, apodeme visible (***TINISSA***) 3
– Valve absent, apodeme not visible (***LEPTOZANCLA***) 2
2 Labides two posteriorly directed spines, juxta with distinct ventro-medial suture; aedeagus more than 1·1 mm long (Pl. 11, fig. 66) . . . . . ***zelotica*** (p. 298)
– Labides four posteriorly directed spines, juxta without ventro-medial suture; aedeagus less than 0·7 mm long (Pl. 10, fig. 65) . . . . ***talaroscia*** (p. 297)
3 Eighth sternite with posterior process at each corner (Pl. 10, figs 61, 63) . . . 4
– Eighth sternite without posterior process at each corner 5
4 Lobes of uncus with small digitate lateral process; aedeagus 0·9 mm long (Pl. 10, fig. 60) . . . . ***ruwenzorica*** (p. 292)
– Lobes of uncus without small digitate lateral process; aedeagus 1·6 mm long (Pl. 10, fig. 62) . . . . ***torvella*** (p. 292)
5 Coremata present in tergosternal membrane of eighth segment 8
– Coremata absent from tergosternal membrane of eighth segment 6
6 Tips of uncus lobes bifid, terminating in pair of large, thorn-like spines (Pl. 8, fig. 50) ***chaotica*** (p. 271)
– Tips of uncus lobes not bifid 7
7 Transtilla cowl-shaped, extended posteriorly; subscaphium rod-like anteriorly; uncus fused with vinculum; aedeagus small (0·80 × 0·06 mm) (African species) ***polystacta*** (p. 294)

– Transtilla not developed; subscaphium broad, blade-like anteriorly; uncus not fused with vinculum; aedeagus large (1·10 × 0·14 mm) (Australasian species) (Pl. 9, fig. 58) ***phrictodes*** (p. 289)
8 Aedeagus with line of fine spines or spicules on external surface (Pl. 9, fig. 59) ***spaniastra*** (p. 291)
– Aedeagus smooth, or with only one or two thorn-like carinae on external surface 9
9 Uncus fused with vinculum (Pl. 10, fig. 64) ***cultellata*** (p. 296)
– Uncus separated from vinculum by narrow membranous zone 10
10 Subscaphium evaginated to form pair of large, spined, digitate processes 11
– Subscaphium without processes 12
11 Aedeagus 1·8 mm long, with large, conspicuous carina from three-quarters, almost reaching tip (Pl. 9, fig. 55) ***indica*** (p. 282)
– Aedeagus without carina, 1·1 mm long (Pl. 9, fig. 56) ***bakeri*** (p. 284)
12 Anterior portion of saccus slender, parallel-sided and elongate, at least seven times as long as broad 13
– Saccus triangular or, if parallel-sided, less than three times as long as broad 17
13 Edge of uncus lobe invaginated to form shallow pocket 14
– Edge of uncus lobe not invaginated 15
14 Juxta approximately one-quarter length of valve (Pl. 7, fig. 48) ***amboinensis*** (p. 269)
– Juxta more than half length of valve (Pl. 7, fig. 46) ***cinerascens*** (p. 267)
15 Conspicuous inwardly directed elongate process from juxta or valve (Pl. 7, fig. 49) ***errantia*** (p. 270)
– Valve or juxta without inwardly directed process 16
16 Tip of uncus lobe an inwardly curved spine (Pl. 8, fig. 52) ***albipuncta*** (p. 275)
– Tip of uncus lobe broad, truncate (Pl. 7, fig. 45) ***distracta*** (p. 269)
17 Juxta extended dorsally into two very long, slender, curved processes, longer than the uncus 18
– Juxta not extended into elongate processes 19
18 Dorsal process from membrane between valve and juxta rectangular, with row of spines along distal edge ***rigida*** (p. 277)
– Dorsal process from membrane between valve and juxta broad, semi-ovate, inner surface covered with spines ***baliomicta*** (p. 280)
19 Uncus lobes with sharp tip, row of fine spines on internal surface (Pl. 8, fig. 51) ***chalcites*** (p. 274)
– Uncus lobes blunt, without fine spines on internal surface 20
20 Uncus approximately 1·3 times as long as wide; aedeagus 1·4 mm long, with large carina at two-thirds and two small apical thorn-like carinae (Pl. 9, fig. 54) ***parallela*** (p. 281)
– Uncus twice as long as wide; aedeagus 1 mm long, with small subterminal carina (Pl. 9, fig. 57) ***insularia*** (p. 285)

Key to female Tinissinae based on genitalia

Females of *Leptozancla* and *Tinissa bakeri*, *chaotica*, *errantia* and *ruwenzorica* are unknown.

1 African species 2
– Indo-Australasian species 5
2 Eighth tergite with transverse ridging, anterior margin with pouch ***cultellata*** (p. 296)
– Eighth tergite without transverse ridging or anterior pouch 3
3 Ostium at right angles to plane of eighth sternite; ductus bursae with large ventral sclerotized patch (Pl. 16, fig. 97) ***polystacta*** (p. 294)
– Ostium oblique to or parallel to plane of eighth sternite, ductus bursae without sclerotization 4

4 Ostium parallel to plane of eighth sternite, half as long as sternite; ductus bursae with fine rugose pimpling (Pl. 16, fig. 98) ***poliophasma*** (p. 290)

– Ostium oblique to plane of eighth sternite, almost as long as sternite; ductus bursae without pimpling (Pl. 16, fig. 94) ***spaniastra*** (p. 291)

5 Eighth tergite with internal or external pouch or similar deep indentation, or sclerotized fold forming pouch at anterior margin 20

– Eighth tergite without pouch, any fold at anterior margin not sclerotized 6

6 Ductus bursae with only about six regular constrictions (Pl. 15, fig. 93) ***phrictodes*** (p. 289)

– Ductus bursae with at least twenty regular constrictions 7

7 Distance from ostium to anterior tip of antrum one-half or less length of eighth sternite 8

– Distance from ostium to anterior tip of antrum three-quarters or more length of eighth sternite 10

8 Posterior margin of eighth tergite with deep U-shaped medial emargination 9

– Posterior margin of eighth tergite with only slight medial indentation (Pl. 15, fig. 90) ***goliath*** (p. 287)

9 Ventral lip of ostium with small, V-shaped medial emargination (Pl. 14, fig. 87) ***insularia*** (p. 285)

– Ventral lip of ostium with large, square emargination (Pl. 15, fig. 91) ***kidukaroka*** (p. 287)

10 Portion of antrum posterior to junction with ductus seminalis less than six times as long as wide 12

– Portion of antrum posterior to junction with ductus seminalis nine times or more as long as wide 11

11 Posterior projection of eighth sternite with dense dorsal patch of setae (Pl. 16, fig. 96) ***torvella mysorensis*** (p. 294)

– Posterior projection of eighth sternite quite smooth on dorsal surface (Pl. 16, fig. 95) ***torvella torvella*** (p. 293)

12 Conspicuous posterior lobe with short spines on seventh tergite (Pl. 12, fig. 71) ***amboinensis*** (p. 269)

– Seventh tergite without posterior lobe 13

13 Anterior tip of antrum extending beyond tips of posterior apophyses (Pl. 11, fig. 67) ***krakatoa*** (p. 267)

– Anterior tip of antrum not extending beyond tips of posterior apophyses 14

14 Portion of antrum anterior to junction with ductus seminalis as long as or longer than posterior portion 15

– Portion of antrum anterior to junction with ductus seminalis shorter than posterior portion 16

15 Ventral surface of eighth tergite folded longitudinally to form accessory flaps either side of base of ovipositor (Pl. 14, fig. 88) ***dohertyi*** (p. 284)

– Accessory flaps not present (Pl. 11, fig. 68) ***cinerascens*** (p. 267)

16 Posterior margin of eighth tergite with two deep lateral emarginations (Pl. 11, fig. 69) ***distracta*** (p. 269)

– Posterior margin of eighth tergite straight or with single medial emargination 17

17 Posterior margin of eighth tergite straight (Pl. 14, fig. 86) ***indica*** (p. 282)

– Posterior margin of eighth tergite with medial emargination 18

18 Posterior margin of eighth sternite and ventral lip of ostium emarginated to about one half (Pl. 14, fig. 89) ***transversella*** (p. 283)

– Posterior margin of eighth sternite and ventral lip of ostium emarginated to less than one-quarter 19

19 Ostium oblique to surface of eighth sternite (Pl. 13, fig. 83) ***rigida*** (p. 277)

– Ostium at right angles to surface of eighth sternite (Pl. 13, figs 82, 84) ***baliomicta*** (p. 280)

20 Conspicuous posterior lobe with short spines from seventh tergite . . . 21
– Seventh tergite without posterior lobe 22
21 Antrum narrowed medially (Pl. 12, fig. 76) . . . . . ***araucariae*** (p. 273)
– Antrum expanded medially (Pl. 12, fig. 77) . . . . . . ***chalcites*** (p. 274)
22 Antrum straight-sided, extending beyond posterior third of anterior apophyses . 23
– Antrum, if straight-sided, not extending beyond posterior third of anterior apophyses 24
23 Pouch in eighth tergite more than three times as broad as antrum (Pl. 12, fig. 79) ***palmodes*** (p. 272)
– Pouch in eighth tergite approximately same width as antrum (Pl. 12, fig. 75) ***eumetrota*** (p. 270)
24 Eighth sternite heavily sclerotized and with deep emarginations either side of antrum and on anterior margin (Pl. 12, fig. 74) . . . . ***convoluta*** (p. 272)
– Eighth sternite with normal anterior margin 25
25 Antrum straight, sometimes tapering, extending beyond anterior margin of eighth sternite 26
– Antrum, if straight, not extending beyond anterior margin of eighth sternite . 27
26 Eighth sternite with deep medial, transverse fold, posterior half of sternite projecting beyond edge of fold (Pl. 13, fig. 81) . . . . . ***philippinensis*** (p. 277)
– Eighth sternite not folded (Pl. 13, fig. 80) . . . . . . ***polysema*** (p. 276)
27 Antrum bulbous, maximum diameter about half width of eighth sternite at widest point of antrum (Pl. 12, fig. 78) . . . . . . ***albipuncta*** (p. 275)
– Antrum diameter one-third or less width of eighth sternite measured in same plane as antrum diameter 28
28 Pouch in eighth tergite one eighth from anterior margin, as broad as maximum width of antrum (Pl. 15, fig. 92) . . . . ***insignis*** (p. 288)
– Pouch at anterior margin of eighth tergite, more than twice as broad as maximum width of antrum (Pl. 14, fig. 85) . . . . ***parallela*** (p. 281)

TINISSA Walker

Tinissa Walker, 1864, *List specimens lepid. Insects Colln Br. Mus.* **29** : 780. Type-species: *Tinissa torvella* Walker, 1864, *ibidem* **29** : 780, by monotypy.
Polymnestra Meyrick, 1927, *Exot. Microlepidopt.* **3** : 331. Type-species: *Polymnestra perilithias* Meyrick, 1927, *ibidem* **3** : 331, by monotypy. [Synonymized by Gozmány & Vári, 1973 : 85.]
Tinissa Walker; Meyrick, 1928 : 424 [redescription].
Tinissa Walker; Fletcher, 1929 : 182 [type-species].
Polymnestra Meyrick; Fletcher, 1929 : 224 [type-species].
Tinissa Walker; Diakonoff, 1955 : 127 [key to Papuan species].
Tinissa Walker; Diakonoff, 1967 : 278 [key to Philippine species].
Tinissa Walker; Gozmány & Vári, 1973 : 85 [redescription].

Mandible present; proboscis present, almost as long as second segment of labial palpus, absent in *T. polystacta*. Maxillary palpus usually three-segmented but with five segments in *T. polystacta* and *T. cultellata*. Antennae extending to about one-half of forewing costa, elongate cilia in male (Pl. 1, fig. 1), shorter cilia in female (Pl. 1, fig. 2), cilia very long in *T. chaotica* (♂) and reduced in length or absent in *T. ruwenzorica*, *poliophasma* and *spaniastra*. Fore wing (Text-fig. 3) somewhat rectangular, 5–15 mm in length; M present or absent in discal cell; R_5 to apex; R_4 and R_5 separate, stalked or completely fused. Elongate oval patch (Pl 1, fig. 3) of small, flat, ovate scales (Pl. 1, fig. 4) on ventral surface of fore wing between A_{1+2} and posterior margin. Hind wing with patch of rough, pale scales opposite fore wing patch, anterior to $Sc + R_1$. Venation usually complete but M sometimes absent from cell. Hind tibia with conspicuous distal hair tuft, first hind tarsal segment smooth-scaled (with rough, raised scaling in *T. spaniastra*).

GENITALIA ♂. Corema present in eighth segment of all but three species. Saccus large and triangular or long and slender. Uncus separated by membrane into pair of lobes attached to vinculum by narrow membranous band at anterior margin, fused to vinculum in *T. cultellata* and *polystacta*. Valve more or less reduced in most species; most species with digitate process arising from membrane between valve and juxta. Labides present in most species, a pair of (often fused) lobes dorsal to aedeagus, in several species extended to form ventral lobes.

GENITALIA ♀. See description for Tinissinae (p. 261) (the female of *Leptozancla*, the only other known genus of the subfamily, is unknown).

REMARKS. See remarks for Tinissinae (p. 263).

Tinissa krakatoa sp. n.

(Pl. 2, fig. 5; Pl. 11, fig. 67)

♂ unknown.

♀. 18 mm. Head white. Labial palpus whitish, second segment brown above in basal half, tuft whitish with few brown streaks; terminal segment with brown subapical spot on dorsal surface, line of brown scales from apex to two-thirds on ventral surface. Thorax and tegula white, tegula brown anteriorly. Fore wing light ochreous brown heavily marked with whitish-ochreous coalescing transverse striae, termen darker; fringe light brown. Hind wing light grey-brown with a purplish sheen; fringe lighter, scales whitish at base. Legs whitish, hind tibial tuft ochreous cream. Fore leg light brown above, tibia and first two tarsal segments with deep brown streak on inner face. Mid tibia with two oblique light brown streaks on outer face, first tarsal segment with brown dot above. First hind tarsal segment with brown dot above. All spurs with brown dot below apex.

GENITALIA ♀ (Pl. 11, fig. 67). Eighth sternite shallow with deep posterior medial emargination to ostium. Ventral margin of ostium concave. Antrum funnel-shaped posteriorly, divided at three-quarters by membranous ring at point of junction with ductus seminalis. Anterior portion of antrum elongate, narrow, parallel-sided, almost reaching tips of apophyses anteriores. Eighth tergite tapered posteriorly, with small V-shaped medial emargination at tip.

REMARKS. *T. krakatoa* differs from *T. cinerascens* and *T. amboinensis* in the much longer anterior portion of the antrum which does not reach the tips of the apophyses posteriores in *amboinensis* or *cinerascens*. The female is smaller and paler than that of *amboinensis*.

DISTRIBUTION. Indonesia (Rakata I. [Krakatau]).

MATERIAL EXAMINED.

Holotype ♀, KRAKATAU: iv. 1933 (*Dammerman*) (genitalia slide no. 19750; BMNH).

Tinissa cinerascens Meyrick

(Pl. 2, figs 6, 7; Pl. 7, figs 46, 47; Pl. 11, fig. 68)

Tinissa cinerascens Meyrick, 1910, *Trans. ent. Soc. Lond.* **1910** : 476. LECTOTYPE ♀, NEW GUINEA: Louisiade Archipelago, Rossel I., 1905 (*Meek*) (genitalia slide No. 19786; BMNH), here designated [examined].

Tinissa cinerascens Meyrick; Diakonoff, 1955 : 128 [key].

♂. 13–15 mm. Pattern similar to ♀ but generally lighter, dark spots on fore wing costa not as frequent. Hind wing light greyish-ochreous, darker towards apex with some white maculae, the largest subapical on costa. Fore and hind wing fringes ochreous-whitish, tinged with grey at fore wing termen.

♀. 19–23 mm. Head and labial palpus whitish, vertex tufts light brown; second segment of labial palpus dark brown above, tuft mixed white and brown, third segment with few brown scales at base, oblique blackish brown band at one half. Antenna ochreous-whitish, first segment with brown scales above, scape white. Thorax and tegula whitish, tegula brown anteriorly and with broad brown medial band. Fore wing light ochreous brown heavily marked with ochreous-whitish such that brown ground colour remains as scattered transverse striae; terminal line dark brown. Fringe grey, scales at termen brownish basally. Hind wing brownish grey, paler maculae among darker spots at apex; fringe ochreous-whitish. Legs whitish, hind tibial tuft ochreous. Fore leg dark brown above to first tarsal segment, second and fourth segments with dark brown rings. Mid tibia with two oblique dark brown bands on outer face, first and fourth tarsal segments ringed with dark brown at distal end. Hind tarsal segments one to four marked with dark brown above. All spurs with dark brown spot below apex.

GENITALIA ♂ (Pl. 7, figs 46, 47). Corema present in eighth segment. Saccus narrow, elongate, expanded anteriorly. Uncus broad, tips rounded with small lateral invagination. Subscaphium broad, setose posteriorly. Valves triangular, juxta forming conspicuous posterior lobe fused to each; process from membrane between valve and juxta present as lobe at tip of each valve. Aedeagus narrow, elongate, without carina.

GENITALIA ♀ (Pl. 11, fig. 68). Eighth sternite rather square, rounded either side of terminal ostium. Ventral margin of ostium with deep U-shaped emargination. Antrum funnel-shaped posteriorly, divided at one half length of eighth sternite by narrow, membranous ring at point of junction with ductus seminalis; anterior portion of antrum narrow, straight-sided, 2·5 times as long as posterior. Ductus bursae narrow, regular constrictions closely spaced. Eighth tergite truncate.

REMARKS. The invagination of the tip of the uncus and the presence of a process between the valve and juxta separate males of this species from those of *T. distracta*. Females may be separated by their more elongate posterior portion of the antrum, narrow ductus bursae and truncate eighth tergite. Females lack the lobe from the seventh tergite present in *T. amboinensis*, the male of which has a much smaller juxta than *T. cinerascens*.

DISTRIBUTION. Buru, New Guinea (Waigeo I., New Guinea, St Matthias Group, Louisiade Archipelago, Green Is. – Nissan I.), Australia (Queensland).

MATERIAL EXAMINED.

Paralectotypes, 2 ♂, 2 ♀, data as lectotype, 1 ♂ as lectotype but Sudest [Tagula] I. (genitalia slide nos. 12288, 19723, 19787; BMNH).

NEW GUINEA: 1 ♀, Waigeo I., Camp Nok, 2500′, iv. 1938 (*Cheesman*) (genitalia slide no. 19726); 1 ♀, Hydrographer Mts, 2500′, iii. 1918 (*Eichhorn*); 1 ♀, Milne Bay (*Meek*) (genitalia slide no. 19725); 2 ♀, Louisiade Archipelago, St Aignan I., 1897 (*Meek*) (genitalia slide no. 19711); 1 ♀, St Matthias I., vi. 1923 (*Eichhorn*) (genitalia slide no. 19724); 1 ♂, Green Is., Nissan I., viii–ix. 1924 (*Eichhorn*) (genitalia slide no. 19718).

AUSTRALIA: 4 ♀, Queensland, Cedar Bay, 1894 (*Meek*) (genitalia slide nos. 12287, 19794).

BURU: 2 ♀, below 1000′, 1892 (*Doherty*) (genitalia slide nos. 12117, 19727).
All specimens in BMNH.

Tinissa distracta Meyrick

(Pl. 2, figs 8, 9; Pl. 7, fig. 45; Pl. 11, fig. 69)

Tinissa distracta Meyrick, 1916, *Exot. Microlepidopt.* **1** : 615. LECTOTYPE ♀, INDIA: Assam, Khasi Hills, xii. 1906 (genitalia slide no. 19779; BMNH), here designated [examined].

♂. 15–16 mm. Pattern similar to ♀ but fore wing even lighter, dark line at termen interrupted. Hind wing silky white, few dark brown maculae near apex, fringe white.

♀. 18–20 mm. Head and labial palpus whitish with few brown scales in vertex tufts; upper surface of second segment of labial palpus brown, brown subapical band on third segment. Antenna white, brown scales above on first segment. Thorax and tegula whitish, tegula brown anteriorly. Fore wing light ochreous brown almost obliterated by ochreous whitish fine transverse striae with larger spots at costa and end of cell, dark brown line at termen; fringe whitish, grey-brown at termen, terminal scales brown at bases. Hind wing light grey, whitish maculae towards apex; fringe whitish. Legs whitish, tuft of hind tibia tinted light ochre. Fore tarsi blackish brown above but third and fifth segments white. Mid tibia with two small blackish brown streaks on outer face; first and fourth tarsal segments banded with blackish brown distally. Hind tarsus with blackish brown bands at end of first and covering fourth segment, some brown at tip of third and proximal end of first segment. All spurs with blackish brown dot below apex.

GENITALIA ♂ (Pl. 7, fig. 45). Corema present in eighth segment; saccus elongate, narrow, clubbed at anterior end, more than twice as long as uncus. Uncus broad, somewhat truncate. Valve large, fused with juxta which forms posterior and inner surface of fused complex. Juxta with two small conical projections on inner face, inner edge serrate below apex; labides present as pair of lightly sclerotized lobes against ventral surface of anellus. Aedeagus slender, elongate, two very small carinae below apex.

GENITALIA ♀ (Pl. 11, fig. 69). Eighth sternite rectangular, slightly produced posteriorly either side of terminal ostium. Antrum a little longer than eighth sternite, divided by membranous ring at point of junction with ductus seminalis; posterior section tubular, anterior section tapered. Regular constrictions of ductus bursae coarse. Eighth tergite with two deep lateral emarginations and a very small medial emargination posteriorly.

REMARKS. *T. distracta* is allied to *T. cinerascens* and externally very similar, but female *cinerascens* lack lateral emarginations of the eighth tergite; the portion of the antrum anterior to the junction with the ductus seminalis is three times the length of the posterior portion, not half as long as in *distracta*. Male *distracta* lack the lateral invaginations of the uncus to form a pair of pouches present in *cinerascens*.

DISTRIBUTION. India, Bali.

MATERIAL EXAMINED.

Paralectotypes, 6 ♂, data as lectotype, x, xi, xii. 1906, iii. 1907(3) (genitalia slide nos. 19731, 19791; BMNH).

INDIA: 1 ♂, Assam, Khasi Hills, x. 1895 (*Doherty*) (BMNH).

BALI: 1 ♂, 1896 (*Doherty*) (genitalia slide no. 19741; BMNH).

Tinissa amboinensis sp. n.

(Pl. 2, figs 11, 12; Pl. 7, fig. 48; Pl. 11, fig. 70; Pl. 12, fig. 71)

♂. 15 mm. Head, labial palpus and antenna whitish, brownish scales above eye and in tuft of second segment of labial palpus. Labial palpus brownish above on outer face, terminal segment with ill-defined outer brown spot at two-thirds. Thorax and tegula whitish, tegula light brown anteriorly. Fore wing light greyish brown, darker at termen, densely flecked with yellowish white; fringe light greyish ochreous. Hind wing yellowish white, brownish on veins and at apex; fringe cream. Legs damaged; mid tibia with two oblique light brown bars on external face, first tarsal segment with light brown medial band, similar band at tip of third and base of fourth. First and second hind tarsal segments (remainder lost) with light brown bands towards tips. All spurs with dark brown spot below apex.

♀. 23 mm. Head and labial palpus whitish, badly rubbed. Second segment of labial palpus greyish brown above and on outer face, tuft streaked with greyish brown; third segment distally brown from one-half, basal brown spot on outer face. Antenna ochreous, first and second segment brown above, scape whitish. Thorax and tegula rubbed. Fore wing greyish brown with lighter, ochreous, transverse striae, white scales at base, series of large cream spots along costa; fringe greyish brown. Hind wing greyish brown, paler maculae at apex; fringe light greyish brown, scales whitish basally. Legs damaged, ochreous-whitish, hind tibial tuft dark brown. Mid tibia dark brown above, first tarsal segment with two brown spots above. Hind tarsus with brown band on first segment; fifth, fourth and tip of third segment brown.

GENITALIA ♂ (Pl. 7, fig. 48). Corema present in eighth segment. Saccus narrow, elongate, anteriorly expanded. Uncus broad, tips rounded with small lateral invagination. Subscaphium broad. Valve large, juxta forming conspicuous lobe at tip. Inner lobe from membrane between valve and juxta with inwardly directed thorn-like protuberance. Aedeagus elongate, narrow.

GENITALIA ♀ (Pl. 11, fig. 70; Pl. 12, fig. 71). Seventh tergite produced posteriorly to form conspicuous lobe clothed with spine-like scales. Eighth sternite tapered, rounded at tip and medially emarginate to ostium. Ventral margin of ostium shallowly emarginate. Antrum elongate, 1·5 times as long as eighth sternite, divided by membranous ring at point of junction with ductus seminalis at two-thirds posteriorly. Eighth tergite with small, shallow V-shaped emargination at tip.

REMARKS. The lobe from the seventh tergite separates the female of this species from that of *T. cinerascens* which is much paler and narrower-winged. Males differ from those of *cinerascens* in having much smaller juxtal lobes at the tip of the valves and a more elongate aedeagus.

DISTRIBUTION. Moluccas (Ambon I.).

MATERIAL EXAMINED.

Holotype ♀, AMBON I. (Amboyna): 1892 (*Doherty*) (genitalia slide no. 19737; BMNH).

Paratype ♂, data as holotype (genitalia slide no. 19798; BMNH).

***Tinissa errantia* sp. n.**

(Pl. 2, fig. 10; Pl. 7, fig. 49)

[*Tinissa baliomicta* Meyrick; Diakonoff, 1967 : 279, figs 423, 776, 778 (partim – 1 ♂ only). Misidentification.]

♂. 13 mm. Head, labial palpus and antenna white, first antennal segment with some brown scales above. Second segment of labial palpus with brown longitudinal line above, few brown scales in tuft; apical segment missing. Thorax and tegula whitish, light brown anteriorly. Fore wing yellowish white, few light brown transverse striae, dark brown marks at termen, two oblique brown basal lines to one-half of wing (inner line obscured in illustration);

fringe whitish, light greyish brown at termen. Hind wing white, veins yellowish, dark brown spots at apex; fringe white. Legs whitish, hind tibial tuft light yellowish brown. Fore tibia brown above, first tarsal segment with brown medial spot above; fourth tarsal segment brown, brown scaling extending on to third and fifth segments. Mid tibia with two light brown oblique bands on outer face; first tarsal segment with medial brown band, similar band on tip of third and base of fourth segment. Hind tarsus with brown medial band on first segment, brownish streak on under surface from band to tip. All spurs with brown dot below apex.

♀ unknown.

Genitalia ♂ (Pl. 7, fig. 49; Diakonoff, 1967 : fig. 423). Corema present in eighth segment. Saccus exceptionally narrow and elongate, three times as long as valve. Uncus lobes narrow, truncate. Details of fusion of valve and juxta found impossible to interpret but juxta probably forming conspicuous inward and dorsally directed processes; small triangular inwardly directed process may be homologous with lobe from membrane between valve and juxta observed in *T. cinerascens* and other species. Labides forming pair of ventral lobes. Aedeagus as narrow as saccus and twice as long.

Remarks. *T. errantia* differs from *T. distracta* and its allies in possessing elongate processes from the tip of the valve-juxta complex. The uncus lobes are narrower and more truncated than in *distracta* and its allies, the known males of which differ from *errantia* in having the saccus expanded anteriorly. The holotype of *errantia* was described by Diakonoff (1967 : 279) as the 'neallotype' of *T. baliomicta*, a species not closely allied to *distracta*. The illustrations by Diakonoff (1967: figs 776, 778) of the right hand side of the holotype are totally misleading as the right fore wing is bent, the distal half in deep shadow and appearing black.

Distribution. Philippines (Luzon I.).

Material examined.

Holotype ♂, Philippines: Luzon I., Mt Makiling (*Baker*) (genitalia slide no. 5265 [Diakonoff]; USNM, Washington).

Tinissa chaotica **sp. n.**

(Pl. 3, fig. 13; Pl. 8, fig. 50)

♂. 16 mm. Head rubbed. Labial palpus yellowish, tuft of second segment streaked with light greyish brown, second segment brown above; terminal segment with brown dot on outer surface, below apex, some brown scales scattered towards base. Antenna ochreous-whitish, cilia three times width of flagellar segments. Thorax and tegula rubbed, whitish-ochreous. Fore wing light brown with densely packed ochreous-whitish transverse striae, darker brown at termen; fringe brownish white. Hind wing white, yellowish on veins, greyish brown at termen; fringe whitish. Legs whitish, hind tibial tuft tinted ochreous, slightly greyish beneath. Fore tibia dark brown above, first tarsal segment with brown dot above. Mid legs rubbed and damaged. Hind tarsus with pale yellowish brown diffuse mark at three-quarters on first segment, fourth segment with few yellowish scales.

♀ unknown.

Genitalia ♂ (Pl. 8, fig. 50). Corema absent from eighth segment. Saccus elongate, rectangular. Uncus tapered, setose, each lobe terminating in two heavily sclerotized spines. Valve short, rounded, with flap-like inwardly directed lobe from tip. Juxta produced posteriorly into two sclerotized points with U-shaped medial emargination a little broader than diameter of aedeagus, dorsally extended into two enormous processes with clubbed and spined tips which almost reach apex of uncus in undissected preparation. Labides forming pair of slender, elongate lobes dorsal to aedeagus, one-half length of uncus. Aedeagus slender, truncate.

REMARKS. Although externally similar to *T. errantia, distracta* and their allies, *chaotica* differs from all other known *Tinissa* species in having four tips to the uncus. The twin-pointed juxta and spined arms are similarly unusual as is the absence of coremata. This species may be distinguished externally by its very long antennal cilia.

DISTRIBUTION. Moluccas (Ambon I.).

MATERIAL EXAMINED.

Holotype ♂, AMBON I. (Amboyna): 1892 (*Doherty*) (genitalia slide no. 12286; BMNH).

Paratypes. 3 ♂, data as holotype (BMNH).

Tinissa convoluta sp. n.

(Pl. 3, fig. 14; Pl. 12, fig. 74)

♂ unknown.

♀. 20 mm. Head whitish. Labial palpus whitish, second segment brown above, tuft with few dark brown scales distally; apical third of terminal segment dark brown. Antenna ochreous white, scape white. Thorax and tegula very light brown, white scales on thorax posteriorly. Fore wing dark yellowish-ochreous with fine dark brown transverse striae, termen dark brown, some light marks on costa, notably towards apex; fringe dark greyish brown. Hind wing dark greyish brown, fringe lighter. Fore and mid legs white, light brown above; mid tibia with two oblique dull brown lines on outer face. Hind legs missing.

GENITALIA ♀ (Pl. 12, fig. 74). Eighth sternite broad, posteriorly emarginate to ostium, heavily sclerotized anteriorly, emarginate either side of antrum. Antrum lightly sclerotized, narrowed posteriorly, extended slightly beyond anterior margin of eighth sternite. Ductus bursae short. Eighth tergite shallowly emarginate posteriorly, posteriorly directed crescentic pouch with internal opening from near anterior margin; anterior margin produced into broad, shallow, T-shaped process covered by reflexed intersegmental membrane to form bilobed second pouch.

REMARKS. The anteriorly emarginate eighth sternite of *convoluta* is not observed in any other *Tinissa* species: the T-shaped pouch-forming process from the anterior margin of the eighth tergite is exclusively diagnostic. *T. convoluta* is externally similar to *T. cinerascens* but is slightly darker.

DISTRIBUTION. New Guinea (Bougainville I.).

MATERIAL EXAMINED.

Holotype ♀, NEW GUINEA: Bougainville I. (*Meek*) (genitalia slide no. 19749; BMNH).

Tinissa palmodes Meyrick

(Pl. 3, fig. 15; Pl. 12, fig. 79)

Tinissa palmodes Meyrick, 1917, *Exot. Microlepidopt.* **2** : 89. Holotype ♀, NEW GUINEA: Setekwa R. (Snow Mts), 2–3000′, 1916 (genitalia slide no. 19769; BMNH) [examined].
Tinissa palmodes Meyrick; Diakonoff, 1955 : 128 [key].

♂ unknown.

♀. 29 mm. Head, thorax and tegula whitish; antenna light brown, scape whitish. Fore wing light ochre flecked with medium and dark brown scales, possibly to form transverse striae (but specimen very worn), large, lighter spots at costa, conspicuous spot at two-thirds, dark scales concentrated at end of cell, dark brown serrate terminal band; fringe scales whitish, grey-tipped, darker at termen. Hind wing very light grey-brown; fringe scales whitish tipped with grey-brown. Legs yellowish white; hind tibial tuft ochreous, dark brown at tips of distal scales. Fore femur and tibia brown above, tarsus with two brown dots. Mid tibia streaked with blackish brown on outer face, tarsus marked with light brown band at distal end of first and third segments. Hind tarsus tinted with light yellow-brown. All spurs with light brown band below apex.

Genitalia ♀ (Pl. 12, fig. 79). Eighth sternite rectangular, setose, deeply emarginate posteriorly; ostium slightly posterior to one half. Antrum long, funnel-shaped posteriorly, reaching tips of apophyses anteriores; ductus bursae short. Eighth tergite concave posteriorly, anterior margin folded into an extremely large, heavily sclerotized pouch with internal opening.

Remarks. The excessively long antrum separates this from all other species with pouches in the eighth tergite, a feature which *palmodes* brings to the observed extreme. Allied to *T. amboinensis* which has no pouch but has a lobe from the seventh tergite. The holotype of *palmodes* has Cu_1 forked 1 mm from the termen in the right hind wing.

Distribution. New Guinea.

Material examined.

Holotype only.

Tinissa araucariae sp. n.

(Pl. 12, figs 72, 76)

[*Tinissa chloroplocama* Meyrick; Diakonoff, 1955 : 128. Misidentification.]

♂ unknown.

♀. 23 mm. Head cream (badly rubbed). Labial palpus broken. Antenna whitish dorsally, dull buff ventrally; scape white beneath. Thorax and tegula whitish, some light brown scales medially on thorax, anteriorly on tegula. Fore wing dark, dull brown, paler maculae discernible at costal margin, two small maculae towards apex, larger maculae at one-half, three-quarters and seven-eighths; blackish brown scales at apex running into fringe which is otherwise greyish brown. Hind wing and fringe light greyish brown, veins overlaid with darker brown scales. Legs badly damaged.

Genitalia ♀ (Pl. 12, figs 72, 76). Seventh tergite produced posteriorly to form conspicuous lobe bearing short, stout scales. Eighth sternite with shallow medial emargination: ostium terminal, ventral margin emarginate to one-fifth length of sternite. Antrum as long as eighth sternite, narrowed medially, sinuate anteriorly. Eighth tergite with concave posterior margin; posteriorly directed, heavily sclerotized pouch with ventral opening at one-quarter from anterior margin. Anterior margin of eighth tergite folded into single-lobed anteriorly directed pouch with dorsal opening.

Remarks. *T. araucariae* is allied to *T. chalcites* but the ground colour of the fore and hind wing is much darker, the lobe of the seventh tergite shorter and broader, the eighth tergite posterior pouch not as deep, the ventral emargination of the ostium narrower than in *chalcites*; the antrum is not swollen medially as it is in *chalcites*. Although this specimen is worn and damaged it is quite distinct. Locality details are given by Diakonoff (1952 : 8).

DISTRIBUTION. New Guinea.

MATERIAL EXAMINED.

Holotype ♀, NEW GUINEA: Araucaria Camp, 800 m, 26.iii.1939 (*Toxopeus*) (genitalia slide no. L 03; RNH, Leiden).

Tinissa chalcites sp. n.

(Pl. 3, fig. 16; Pl. 8, fig. 51; Pl. 12, figs 73, 77)

♂. 23 mm. Pattern similar to ♀.

♀. 25–29 mm. Head light brownish yellow, tufts of darker scales near eyes. Labial palpus yellowish white; second segment partly light yellowish brown above, tuft white mixed with dark brown scales, terminal segment with light brown band at base and two-thirds. Antenna light ochreous brown, scape whitish. Thorax and tegula pale yellowish brown, thorax white posteriorly. Fore wing pale ochreous brown with medium brown transverse striae, denser markings along costa, termen and at one-quarter posteriorly; fringe medium brown with few lighter scales. Hind wing pale, dull yellowish brown, darker transverse striae at apex, dull brown at termen; fringe whitish, becoming grey towards apex. Legs yellowish white, hind tibial tuft light ochreous, distal scales tipped with greyish brown. Fore leg brownish above, two brown dots on upper surface of tarsus. Mid tibia with two oblique light brown bands on outer face. Two light brown dots on upper surface of hind tarsus. All spurs with brown band below apex.

GENITALIA ♂ (Pl. 8, fig. 51). Corema present in eighth segment, eighth sternite markedly convex posteriorly. Saccus triangular, longer than wide. Uncus elongate, tips sharp, pointing outwards, line of fine spines pointing inwards from dorsal surface. Juxta enormous, forming pair of converging horn-like processes. Valve reduced, simple. Transtilla present; dorsal and ventral pairs of labides with pair of quadrangular ventrolateral labides adjacent to base of valve. Aedeagus bent at one-quarter, stout, several nodular projections on distal surface, largest just below apex.

GENITALIA ♀ (Pl. 12, figs 73, 77). Seventh tergite produced posteriorly to form conspicuous lobe bearing short, stout scales. Eighth sternite with posterior medial emargination to one-fifth; ventral margin of ostium emarginate to level of posterior margin of eighth sternite; surface of eighth sternite recessed towards ostium. Antrum as long as eighth sternite, slightly sinuate and narrowed at anterior end, swollen medially. Eighth tergite shallowly emarginate posteriorly; posteriorly directed, heavily sclerotized pouch with ventral opening at one-fifth from anterior margin which itself is rolled into a single-lobed, anteriorly directed pouch with dorsal opening; between these two pouches a pair of shallow lateral lobes.

REMARKS. *T. chalcites* is larger and paler than *T. araucariae* and has a brassy appearance; it is also allied to *T. albipuncta* (which is smaller and darker than both *chalcites* and *araucariae*), the female of which species has no spined lobe from the seventh tergite and the male of which does not have the tips of the juxta curved inwards.

DISTRIBUTION. New Guinea.

MATERIAL EXAMINED.

Holotype ♀, NEW GUINEA: Mambare R., Biagi, 5000′, i–iv. 1906 (*Meek*) (genitalia slide no. 19735; BMNH).

Paratypes. 1 ♂, 1 ♀, data as holotype (genitalia slide no. 19730; BMNH).

Tinissa albipuncta **sp. n.**

(Pl. 3, fig. 17; Pl. 8, fig. 52; Pl. 12, fig. 78)

♂. 23 mm. Pattern similar to ♀ but thorax and tegula white, streaked anteriorly with brown. Markings of labial palpus and legs accentuated in comparison with ♀.

♀. 22 mm. Head whitish, vertex light brown. Labial palpus whitish, second segment light brown above and on outer surface of tuft; terminal segment with pair of light brown bands. Antenna dull brown, scape white. Thorax and tegula light yellowish brown flecked posteriorly with white. Fore wing dark, dull brown marked with conspicuous white dots at margins, large white dot at end of cell, transverse striae towards base; fringe brownish, lighter at tornus. Hind wing light ochreous brown, darker on veins and at apex, paler maculae at apex; fringe whitish, scales brown at base. Legs whitish, hind tibial tuft ochreous, darker distally. Fore and mid leg marked with brown above, two oblique brown bands on outer surface of mid tibia. All tarsi banded with brown (? – partly obscured by fungal hyphae), spurs banded below apex.

GENITALIA ♂ (Pl. 8, fig. 52). Corema present in eighth segment. Saccus narrow, elongate. Uncus elongate, tapered, tips hooked inwards. Juxta enormous, fused to posteriorly extended vinculum, terminal lobes with inner line of heavily sclerotized dentate projections. Valve reduced, simple. Transtilla present; pair of stout, elongate labides dorsal to anellus [tips of these broken in illustrated preparation]. Aedeagus narrow, curved and elongate; small, short carina arising one-fifth from apex, small thorn-like projection below apex.

GENITALIA ♀ (Pl. 12, fig. 78). Eighth sternite with broad posterior emargination. Dorsal margin of ostium slightly concave, ventral margin with V-shaped emargination to level of dorsal margin. Antrum elongate, globose, membranous in narrow band posterior to junction with ductus seminalis; portion of antrum anterior to junction with ductus seminalis L-shaped, narrow. Eighth tergite with small posterior emargination, heavily sclerotized pouch at anterior margin with two lateral, heavily sclerotized flaps.

REMARKS. *T. albipuncta* is smaller and darker than *T. chalcites* or *T. araucariae*, the wing pattern distinctive. The ♂ juxta is better developed than in *chalcites* which lacks a carina on the aedeagus. The ♀ lacks the lobe from the seventh tergite present in *chalcites* and *araucariae*.

DISTRIBUTION. New Guinea.

MATERIAL EXAMINED.

Holotype ♀, NEW GUINEA: Mambare R., Biagi, 5000′, i–iv. 1906 (*Meek*) (genitalia slide no. 19721; BMNH).

Paratype ♂, data as holotype (genitalia slide no. 19770; BMNH).

Tinissa eumetrota Meyrick

(Pl. 3, fig. 18; Pl. 12, fig. 75)

Tinissa eumetrota Meyrick, 1926, *Exot. Microlepidopt.* **3** : 319. LECTOTYPE ♀, NEW IRELAND: xii. 1923–i. 1924 (*Eichhorn*) (genitalia slide no. 19785; BMNH), here designated [examined].
Tinissa eumetrota Meyrick; Diakonoff, 1955 : 128 [key].

♂ unknown.

♀. 20–22 mm. Head brownish, whitish tufts near eyes. Labial palpus whitish, second segment dark brown above, tuft streaked with dark brown, terminal segment with dark brown subapical band, basally some dark scales on upper surface. Antenna dark brown, scape whitish. Thorax and tegula dark purplish brown with white transverse medial band. Fore wing dark purplish brown with paler transverse striae, whitish marks along costa, at end of cell, conspicuous transverse mark from posterior margin at nearly one-half; fringe greyish brown. Hind wing greyish brown with purplish sheen, paler maculae towards apex; fringe greyish brown. Legs ochreous white, tuft of hind tibia brown distally. Fore leg dark brown above, three dark brown bands on tarsus, basal band narrow, inconspicuous. Mid tibia with two dark brown oblique bands on outer face. First segment of hind tarsus with broad, dark brown band. All spurs with dark brown band below apex.

GENITALIA ♀ (Pl. 12, fig. 75). Eighth sternite triangular, setose; ostium terminal; U-shaped sclerotized ridge from dorsal side of antrum at one-half. Antrum cylindrical, as long as eighth sternite, separated into two sections of similar diameter and length by membranous ring at point of junction with ductus seminalis. Eighth tergite posteriorly truncate, more heavily sclerotized anteriorly with small, narrow but deep anteriorly directed pouch with external opening.

REMARKS. Of species with pouches in the eighth tergite, only *T. palmodes* and *T. eumetrota* have an elongate antrum. In *palmodes* the antrum is completely sclerotized; in *eumetrota* there is a membranous ring at the point of junction with the ductus seminalis. The anterior tip of the antrum does not reach the tips of the apophyses anteriores as in *palmodes*.

DISTRIBUTION. New Ireland.

MATERIAL EXAMINED.

Paralectotype ♀, NEW IRELAND: xii. 1923–i. 1924 (*Eichhorn*) (abdomen missing; BMNH).

Tinissa polysema Zagulajev

(Pl. 3, fig. 19; Pl. 13, fig. 80)

Tinissa polysema Zagulajev, 1972, *Trudy̆ zool. Inst. Leningr.* **52** : 348, figs 17a, 17b. Holotype ♀, JAVA: Baleq-Takengon, 29. ix. (*Roepke*) (genitalia slide no. 22; RNH, Leiden) [examined].

♂ unknown.

♀. 24 mm. Head yellowish white, vertex greyish brown. Labial palpus yellowish white, tuft of second segment streaked with grey, upper surface spotted with brown; terminal segment black, white at base and apex. Antenna cream, some greyish ochre scales. Thorax and tegula greyish brown, paler posteriorly, medial transverse white band. Fore wing greyish brown, cream spots concentrated basally and at posterior margin, large cream spot at end of cell, deep greyish brown markings at apex and middle of termen; fringe greyish brown flecked with white. Hind wing light greyish brown spotted with ochreous white towards apex and along costa, small brownish black mark at apex; fringe cream, scales tipped with grey. Legs whitish, tufts of hind tibia ochreous. Fore leg greyish brown above, tarsal segments banded with greyish brown. Mid tibia with two oblique greyish brown bands, only first tarsal segment banded. Hind tarsal segments banded with greyish brown. All spurs banded with dark grey below apex.

GENITALIA ♀ (Pl. 13, fig. 80; Zagulajev, 1972 : figs 17a, 17b). Eighth sternite rectangular, setose; ostium slit-like, anterior; sternite deeply recessed to either side of ostium margin. Eighth tergite with posterior medial emargination, anteriorly with a crescentic, posteriorly directed pouch. Antrum two-thirds length of eighth sternite.

REMARKS. *T. polysema* is allied to *T. philippinensis* but the light forewing markings are bolder. The ♀ genitalia of *philippinensis* have the eighth tergite only shallowly concave, the eighth sternite shorter and deeply folded dorsal to the ostium which is set in an emargination of the resulting transverse ridge.

DISTRIBUTION. Java.

MATERIAL EXAMINED.

Holotype only.

Tinissa philippinensis sp. n.

(Pl. 3, fig. 20; Pl. 13, fig. 81)

[*Tinissa baliomicta* Meyrick; Diakonoff, 1967 : 280 (partim – 2 ♀ only). Misidentification.]

♂ unknown.

♀. 22–23 mm. Head yellowish white, vertex with admixture of dark brown scales. Labial palpus cream, tufts of second segment streaked with medium brown, terminal segment with broad brownish black band below apex. Antenna cream, some brown scales at base of scape and on first segment. Thorax and tegula greyish brown with transverse medial white band, white at posterior margin. Fore wing medium brown, yellowish ochre spots forming pattern of broken transverse lines, larger spots at margins and at apex of cell, deep brown markings at apex and along termen; fringe light greyish brown with some whitish streaks. Hind wing light greyish brown, paler maculae towards apex, apex with three dark brown spots at margin; fringe light greyish brown with some lighter streaks. Legs yellowish white, hind tibial tuft light greyish ochre. Fore leg greyish brown above, fourth and fifth tarsal segments banded greyish brown at articulation. Mid tibia with two oblique greyish brown bands, first tarsal segment banded. Hind tarsus with very pale brown band on each segment. All spurs banded with dark brown below apex. Outer spurs of hind tibia with elongate dark-tipped scales.

GENITALIA ♀ (Pl. 13, fig. 81). Eighth sternite tapered, setose, deeply infolded at two-thirds to form transverse ridge with deep medial emargination which anteriorly forms ostial margin. Posterior third of eighth sternite lightly sclerotized. Eighth tergite with shallow medial emargination posteriorly (depth greater in paratype), anteriorly with a crescentic posteriorly directed pouch. Antrum two-thirds length of eighth sternite.

REMARKS. The fore wing fringe of *T. philippinensis* is darker, the fore wing markings not as pale nor as bold as in *T. polysema*. The antrum is more heavily sclerotized and narrower, the eighth sternite not rectangular and not as heavily sclerotized posteriorly as in *polysema*.

DISTRIBUTION. Philippines (Luzon I.).

MATERIAL EXAMINED.

Holotype ♀, PHILIPPINES: Luzon, Mt Makiling (*Baker*) (genitalia slide no. W 05; USNM, Washington).

Paratype ♀, data as holotype (genitalia slide no. W 08; USNM, Washington).

Tinissa rigida Meyrick

(Pl. 4, figs 21, 22; Pl. 8, fig. 53; Pl. 13, fig. 83; Text-fig. 4)

Tinissa rigida Meyrick, 1910, *Trans. ent. Soc. Lond.* **1910** : 477. Holotype ♂, INDONESIA: Kai [Kei] Is., 1895 (*K.*) (genitalia slide no. 19782; BMNH) [examined].

Tinissa heterograpta Meyrick, 1928, *Exot. Microlepidopt.* **3** : 425. LECTOTYPE ♀, NEW BRITAIN: Talasea, iii. 1925 (*Eichhorn*) (genitalia slide no. 19780; BMNH), here designated [examined]. **Syn. n.**

Tinissa chloroplocama Meyrick, 1938, *Trans. R. ent. Soc. Lond.* **87** : 526. LECTOTYPE ♂, New Guinea: Papua, Kokoda, 1200′, v. 1933 (*Cheesman*) (genitalia slide no. 19790; BMNH), here designated [examined]. **Syn. n.**

Tinissa rigida Meyrick, *T. heterograpta* Meyrick, *T. chloroplocama* Meyrick; Diakonoff, 1955 : 127 [key].

♂. 15–21 mm. Similarly patterned to ♀ but hind wing paler, a few darker maculae at apex. Flagellum of antenna whitish above. Brown markings on fore leg darker, brown bands on second and fourth tarsal segments, first with brown streak above, brown streak on outer surface of tibia. Very broad brown bands at one-third and two-thirds of hind tarsus.

♀. 21–25 mm. Head whitish, vertex with admixture of light brown. Labial palpus whitish, second segment brown above and on outer surface, brown extended to outer scales of tuft, terminal segment with broad brown ring at two-thirds, on several specimens a basal brown spot on outer surface. Antenna brownish, scape and pecten white. Thorax and tegula dark greyish brown anteriorly, whitish in posterior half. Fore wing dark brown to blackish brown with whitish transverse markings, two conspicuous oblique light basal lines; fringe greyish brown, scales whitish basally. Hind wing greyish brown with a violet sheen; fringes lighter. Legs ochreous-whitish, hind tibial tuft light greyish-ochreous. Fore leg greyish above but second and tip of first tarsal segment whitish. Mid tibia with two broad brown oblique bands on outer surface; brown dots above in middle of first and on fourth tarsal segment. Hind tarsus greyish brown above. All spurs with broad brownish streak below apex.

Genitalia ♂ (Pl. 8, fig. 53). Corema present in eighth segment. Saccus rectangular. Uncus tapered, tips heavily sclerotized. Juxta large, heavily sclerotized, with broad, trebly emarginate pair of flange-like inwardly directed processes. Dorsal surface of juxta giving rise to pair of enormous horn-like processes. Valve reduced, small and stout, with dorsal digitate setose process at one-half; rectangular process from membrane between valve and juxta with broad band of inwardly directed spines at tip. Labides a pair of rectangular plates against dorsal surface of anellus and curved ventrad. Aedeagus short; short, blunt process just below apex.

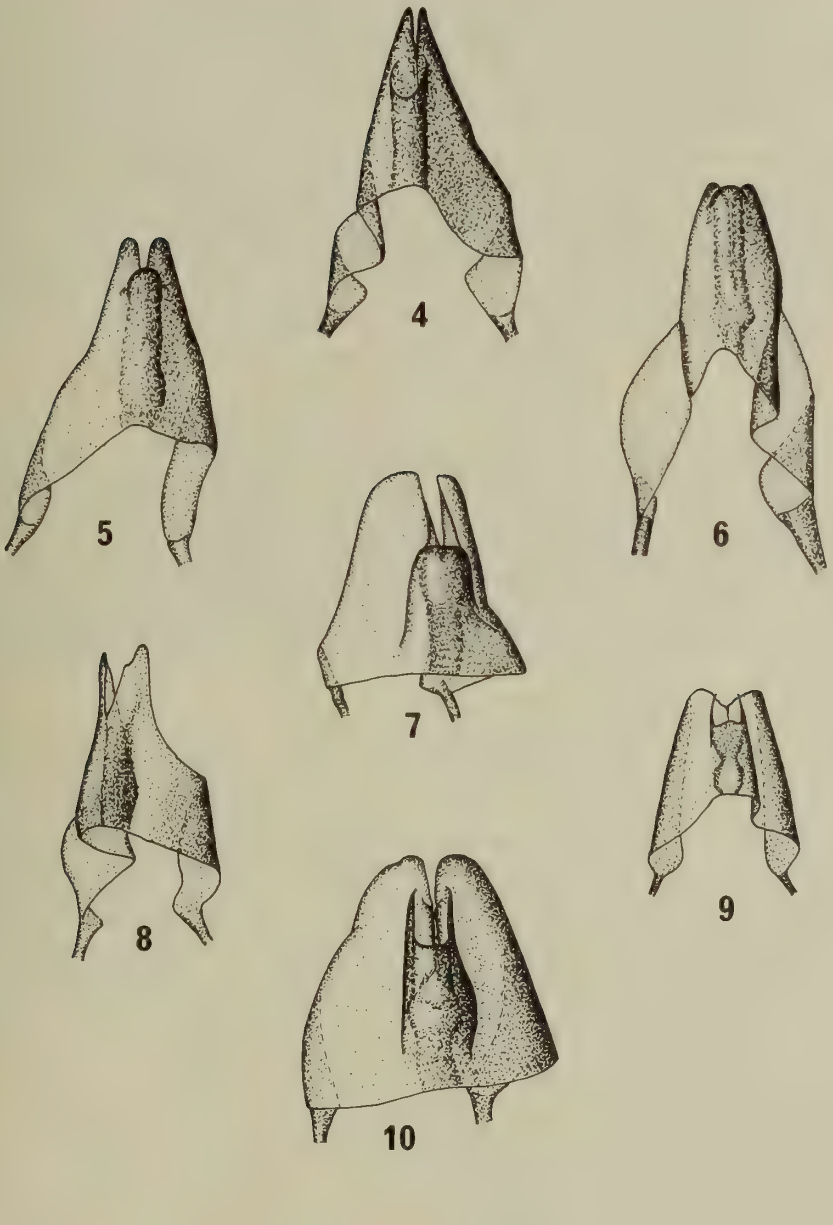
Genitalia ♀ (Pl. 13, fig. 83; Text-fig. 4). Eighth sternite long, sharply tapered to form conical double-tipped projection which carries oblique ostium. Antrum broad, short, divided by membranous ring at point of junction with ductus seminalis, short anterior portion displaced to left. Eighth tergite with shallow V-shaped posterior medial emargination, folded longitudinally to form pair of internal lobes which slightly overlap eighth sternite.

Remarks. The anterior portion of the antrum of *T. rigida* is larger than in *T. baliomicta* in which the plane of the ostium is at right angles to the plane of the abdomen, not oblique as in *rigida*. The lateral folds of the eighth tergite are not well-developed in *baliomicta*. Males of *baliomicta* from New Guinea have the dorsal process from the membrane between valve and juxta broad and thickly spined, not rectangular and only spined at the tip as in *rigida*. *T. parallela* is allied to *rigida* but the ♀ eighth tergite has an anterior pouch and the antrum is smaller. The ♂ of *parallela* lacks the horn-like processes from the juxta present in *rigida* and *baliomicta*.

Distribution. Indonesia (Kai Is.), New Guinea, Karkar I., New Britain, New Hanover, St Matthias I., D'Entrecasteaux Is, Louisiade Archipelago, Australia (Queensland).

Material examined.

New Guinea: 2 ♀, Kumusi R., low elev., v–ix. 1907 (*Meek*) (genitalia slide no. 19777); 2 ♀, 1 ♂, Aroa R. (*Meek*) (genitalia slide no. 19716); 2 ♂, Hydrographer



Figs 4–10. Female genitalia (eighth sternite) of *Tinissa* spp. 4. *T. rigida* Meyrick [lectotype of *heterograpta*], New Britain. 5. *T. baliomicta* Meyrick, holotype, Philippines. 6. *T. baliomicta* Meyrick, New Guinea. 7. *T. parallela* sp. n., holotype, Sumatra. 8. *T. dohertyi* sp. n., holotype, Ambon I. 9. *T. kidukaroka* sp. n., holotype, Borneo. 10. *T. insignis* Zagulajev, holotype, Java.

Mts, 2500′, ii. 1918 (*Eichhorn Bros.*) (genitalia slide no. 19715); 1 ♂, Astrolabe Bay, 1800′, 1926 (*Dodd*); 2 ♂, 2 ♀, Milne Bay (*Meek*) (genitalia slide no. 19713); 1 ♀, Lae, 20.ii.1968 (*Coode*). KARKAR I.: 3 ♀, 1 ♂, ii. 1914 (*Meek*) (genitalia slide nos. 19712, 19714). NEW BRITAIN: 1 ♀, Talasea, i. 1925 (*Eichhorn*) [paralectotype of *heterograpta*] (abdomen missing). NEW HANOVER: 1 ♀, ii. 1923 (*Meek*) (genitalia slide no. 19742). ST MATTHIAS I.: 1 ♂, vii. 1923 (*Eichhorn*) (genitalia slide no. 19717). D'ENTRECASTEAUX IS.: 3 ♂, 1 ♀, Fergusson I., 1–9. x., 7–20. xi., 21. xi.–18. xii., 23–31.xii.1894 (*Meek*) (genitalia slide no. 19781). LOUISIADE ARCHIPELAGO: 1 ♂, St Aignan I., 1897 (*Meek*) (genitalia slide no. 19710).

AUSTRALIA: 1 ♂, 2 ♀, N. Queensland, Kuranda, 11. x., 12. x., 20.xii.1904 (*Dodd*) (genitalia slide nos. 19772, 19773).

All specimens in BMNH.

Tinissa baliomicta Meyrick

(Pl. 4, fig. 23; Pl. 13, figs 82, 84; Text-figs 5, 6)

Tinissa baliomicta Meyrick, 1928, *Exot. Microlepidopt.* **3** : 424. Holotype ♀, PHILIPPINES: Luzon, Mt Makiling, 1927 (*Baker*) (genitalia slide no. 19789; BMNH) [examined].
Tinissa baliomicta Meyrick; Diakonoff, 1967 : 279 (partim – 8 ♀ only).

♂ [New Guinea only]. 21–23 mm. Similarly patterned to ♀ but fore wing with pale markings broader; dark, diffuse but conspicuous brown spot beyond whitish mark at end of cell. Hind wing paler than in ♀, very light greyish brown in one example, whitish in other. Fore tarsus brown above only on distal half of first and on fourth segment. Distinct black dot in upper surface of tuft at tip of hind tibia.

♀. 22–32 mm. Head whitish, brown scales near eyes and posteriorly. Labial palpus whitish, second segment brown above and on external face, tuft mixed with brown externally; base of terminal segment with few brown scales above, brown band at two-thirds. Antenna brownish, first segment very dark, scape white. Thorax and tegula whitish, brown anteriorly. Fore wing medium to dark brown with ochreous-whitish transverse striae, white concentrated at end of cell and in conspicuous oblique basal line, darker brown dot at base of costa and several small dark dots at apex; fringe greyish brown, paler basally, whitish dots continued into fringe. Hind wing greyish brown, paler maculae at apex; fringe mixed greyish and light ochreous. Legs ochreous-whitish, hind tibial tuft light greyish brown. Fore tibia and first and fourth tarsal segments brown above. Mid tibia with two broad oblique brownish bands on outer face, first and fourth tarsal segments with brown spot above. Upper surface of hind tarsus predominantly blackish brown, whitish only on base of first and tips of second and third segments. All spurs with large greyish brown streak below apex.

GENITALIA ♂ [New Guinea only]. Similar to genitalia of *T. rigida* but deep V-shaped medial emargination in ventral edge of juxta. Dorsal process from membrane between valve and juxta adjacent to dorsal pair of labides broad, semi-ovate and thickly clothed with fine spines on inner surface.

GENITALIA ♀ (Pl. 13, fig. 84; Text-fig. 5 [Philippines]; Pl. 13, fig. 82; Text-fig. 6 [New Guinea]). Eighth sternite triangular, deep, narrow medial emargination posteriorly. Ostium protuberant, at right angles to plane of eighth sternite. Antrum short, broad, sharply tapered anterior to membranous zone at point of junction with ductus seminalis. Eighth tergite with V-shaped medial emargination posteriorly.

REMARKS. *T. baliomicta* is closely allied to *T. rigida* but in the ♀ genitalia the ostium is at right angles to the plane of the eighth sternite, not oblique: the ♂ has a broader and larger dorsal process between the valve and the juxta than does *rigida*, spines not restricted to the margins of the process; males of *rigida* lack the deep V-shaped medial emargination present in the ventral margin of the juxta of *baliomicta*. Females of *baliomicta* from New Guinea differ slightly from topotypical females in the more terminal position of the ostium and the medially more bulbous eighth sternite. In the three New Guinean preparations the eighth tergite has internal longitudinal folds forming lateral lobes similar to those of *rigida*. In specimens from Biagi these are much reduced but in a specimen from the Cyclops Mts are well developed. In New Guinea *baliomicta* and *rigida* appear to be geographically separated, *rigida* only being recorded from below 750 m and *baliomicta* only from above 1050 m. The series of *baliomicta* described from the Philippines by Diakonoff (1967 : 279) contains four species, *T. philippinensis*, *T. errantia* and *T. bakeri* and only eight females referable to *baliomicta*.

DISTRIBUTION. Philippines (Luzon I.); New Guinea.

MATERIAL EXAMINED.

PHILIPPINES: 9 ♀, Luzon, Mt Makiling (*Baker*) (genitalia slide nos. W 04, 5266 [Diakonoff]; USNM, Washington, one specimen in RNH, Leiden); 1 ♀, Luzon, Benguet, Palali, 2000′, 20.xii.1912 (*Wileman*) (genitalia slide no. 19734; BMNH).

NEW GUINEA: 5 ♀, 1 ♂, Mambare R., Biagi, 5000′, i–iv. 1906 (*Meek*) (genitalia slide nos. 19728, 19751, 19776; BMNH); 1 ♀, Cyclops Mts, Mt Lina, 3500–4500′, iii. 1936 (*Cheesman*) (genitalia slide no. 19793; BMNH); 1 ♂, Buntibasa dist., Kratke Mts, 4000–5000′, vi. 1932 (*Mayer*) (genitalia slide no. 19775; BMNH).

Tinissa parallela sp. n.

(Pl. 4, figs 24, 25; Pl. 9, fig. 54; Pl. 14, fig. 85; Text-fig. 7)

♂. 19–20 mm. Similarly patterned to ♀ but paler; vestiture of head wholly yellowish white but brown external streaks on tuft of labial palpus, two external brown marks on terminal segment; few brown scales anterior to eye. Thorax and tegula white, tegula brown anteriorly. Fore wing pale markings heavier than in ♀; hind wing whitish, light brown on veins and at margin. Legs whitish, hind tibial tuft greyish brown distally. Fore leg dark brown above, tarsus banded with dark brown on first and fourth segments. Mid tibia with two oblique light brown streaks, mid tarsus with two brown dots on upper surface. Hind tarsal segments each with blackish brown spot on upper surface. All spurs with blackish brown subapical band.

♀. 22–23 mm. Frons yellowish white, vertex light brown. Labial palpus whitish, second segment brown above, tuft streaked with dark brown, terminal segment with two dark brown dots on outer surface. Antenna dull brown, lighter beneath, scape white. Thorax whitish, some light brown scales anteriorly, tegula light brown flecked with white. Fore wing dull brown with cream maculae, pronounced oblique double basal line, maculae concentrated in medial fascia and beyond cell, conspicuous dark mark beyond three-quarters; fringe whitish streaked with light brown. Hind wing light greyish brown, paler maculae towards apex; fringe whitish. Legs badly damaged.

GENITALIA ♂ (Pl. 9, fig. 54). Corema present in eighth segment. Saccus triangular, truncate anteriorly. Uncus tips blunt, heavily sclerotized, finely ridged at apex. Juxta very large, angular, without processes. Valve reduced, comparatively lightly sclerotized, with pair of dorsal processes with apices bearing long hairs. Pair of triangular labides dorsal to anellus.

Aedeagus curved, tapering, triangular process at two-thirds, two small thorn-like processes at tip.

GENITALIA ♀ (Pl. 14, fig. 85; Text-fig. 7). Eighth sternite tapered, truncate, a deep, narrow medial emargination to one-half; either side of emargination ventral ridges rising to meet ostial margin. Ostium transverse, protuberant. Eighth tergite medially emarginate posteriorly, margin invaginated anteriorly to form pouch. Antrum very short, less than half length of medial emargination of eighth sternite.

REMARKS. *T. parallela* differs from both *T. rigida* and *T. baliomicta* in lacking horn-like processes from the juxta in the ♂ and possessing a pouch in the eighth tergite in the ♀. It differs from *T. indica* in lacking spined processes from the subscaphium in the ♂ and not having the antrum displaced anteriorly to the left in the ♀.

DISTRIBUTION. Singapore, Sumatra.

MATERIAL EXAMINED.

Holotype ♀, SUMATRA: Padang Bovenlanden, Batang Proepoe, 1500′ (genitalia slide no. 19792; BMNH).

Paratypes. SUMATRA: 1 ♀, Dempo, 4000′, viii. 1923 (*Brooks*) (genitalia slide no. 19736; BMNH); 1 ♂, Bonam Dolok, Sibolga, 500 m, 3.xi.1931 (*Mohr*) (genitalia slide no. L 04; RNH, Leiden). SINGAPORE: 1 ♂ (*Baker*) (genitalia slide no. W 06; USNM; Washington).

***Tinissa indica* sp. n.**

(Pl. 4, fig. 26; Pl. 9, fig. 55; Pl. 14, fig. 86)

♂. 25–30 mm. Similarly patterned to ♀.

♀. 26–30 mm. Head whitish, few brown scales near eyes. Labial palpus whitish, second segment and tuft dark brown above and on outer surface, terminal segment with broad brown band at a little beyond one-half, brown spot at base. Antenna brown, scape and pecten whitish. Thorax and tegula predominantly brown, thorax white for posterior two-thirds, tegula white for posterior third with anterior white dot. Fore wing purplish brown with conspicuous white dots along costa, in posterior third, at base and at end of cell, finely speckled with lighter brown; fringe brownish. Hind wing light greyish brown with a violet sheen, lighter speckles concentrated at apex; fringe lighter. Legs ochreous cream, hind tibial tuft light greyish brown. Fore tibia and tarsus blackish brown above, cream at articulations and on fifth tarsal segment. Mid tibia with two broad oblique brown bands on outer face, all tarsal segments except fifth with large blackish brown spot above, hind tarsi similar. All spurs with large blackish brown spot below apex.

GENITALIA ♂ (Pl. 9, fig. 55). Corema present in eighth segment. Saccus triangular. Uncus broad; tips truncate, heavily sclerotized and setose. Subscaphium broad, invaginated to form pair of digitate processes with spined tips. Juxta large, forming pair of fist-shaped processes. Valve short, conical; elongate process from membrane between valve and juxta. Transtilla present, broad; pair of finely scobinate labides dorsal to anellus. Aedeagus with long carina from two-thirds.

GENITALIA ♀ (Pl. 14, fig. 86). Eighth sternite ventrally protuberant, tapered, with shallow medial emargination in ventral margin of ostium. Antrum broad, ductus bursae entering on left. Posterior region of ductus bursae with very fine regular constrictions, ductus broadening and constrictions coarser anteriorly. Eighth tergite truncate, slightly concave posteriorly.

REMARKS. *T. indica* is allied to *T. transversella* but the ♀ lacks a deep posterior emargination of the eighth sternite or tergite; the wing pattern is much darker. *T. indica* is also allied to *T. bakeri* but the male has a truncate, not pointed uncus; the juxta is not reduced to a pair of cygnate lobes.

DISTRIBUTION. India (Assam), Sikkim, Bhutan, Taiwan (Formosa).

MATERIAL EXAMINED.

Holotype ♀, SIKKIM: 1800′, v. 1897 (*Dudgeon*) (genitalia slide no. 19766; BMNH).

Paratypes. INDIA: 3 ♀, 4 ♂, Assam, Khasi Hills, various dates 1894–1906 (*Doherty*) (genitalia slide nos. 19756, 19767, 19768); 2 ♂, Assam, Margherita, 1888, 1889 (*Doherty*) (genitalia slide no. 19759); 1 ♂, Assam, Khasi Hills, Cherra Punji, 1894 (*Doncaster*); 1 ♀, Assam, Silchar, Cachar, 12.viii.'7; 1 ♀, Assam, Jorhat dist., Tocklai, 6–12.xi.1919 (*Fletcher*). SIKKIM & BHUTAN: 1 ♂ (*Knyvett*). BHUTAN: 1 ♂, 28. vii. (*Dudgeon*) (genitalia slide no. 19756). All paratypes in BMNH.

Material excluded from paratype series. TAIWAN (Formosa): 2 ♂, Kanshirei, 1000′, 20. iv., 27.vii.1908 (*Wileman*) (genitalia slide no. 19763; BMNH).

Tinissa transversella (Walker) **comb. n.**

(Pl. 4, fig. 27; Pl. 14, fig. 89)

Gelechia transversella Walker, 1864, *List Specimens lepid. Insects Colln Br. Mus.* **29** : 641. Holotype ♀, SARAWAK: Saunders colln (badly damaged – abdomen missing; BMNH) [examined].

♂. unknown.

♀. 22–32 mm. [Description based on specimen from Sulawesi.] Head whitish mixed with brown. Labial palpus whitish, first and second segment blackish brown above and on outer surface of tuft, terminal segment with dark brown band at two-thirds. Antenna brownish, basal two segments of flagellum darker above, scape whitish. Thorax and tegula [damaged] whitish, dark brown anteriorly. Fore wing dull brown traversed by ochreous whitish striae; fringe greyish brown mixed with white, bases of scales pale. Hind wing light greyish with paler maculae at apex; fringe greyish brown, bases of scales whitish. Mid and hind legs missing: fore tibia and tarsus blackish brown above, whitish on second and fifth tarsal segments.

GENITALIA ♀ (Pl. 14, fig. 89) [Specimen from Sulawesi]. Eighth sternite triangular with deep, narrow, medial emargination to one-half in dorsal and ventral surfaces of posterior projection; ostium very narrow. Antrum broad posteriorly, sharply narrowed anterior to membranous zone at point of junction with ductus seminalis; anterior portion of antrum narrow, sclerotization extended into first nine or ten regular constrictions of ductus bursae. Eighth tergite with shallow posterior medial emargination, longitudinally folded to form two internal lateral flaps either side of ovipositor as in *T. rigida*.

REMARKS. The holotype of *transversella* is so damaged as to defy positive characterization of this taxon of which I take the female from Sulawesi described above as representative. The latter specimen is similar to the remnants of the type and is not incompatible with the original description. The Sumatran specimen differs slightly from the Sulawesi female in the lighter markings of the labial palpus and shorter anterior portion of the antrum: additionally it lacks the internal flaps from the eighth tergite but this feature is also variable in *T. baliomicta*. *T. transversella* differs from *T. indica* in having a much more extensive series of light markings on the fore wing and having a medially emarginate eighth tergite; the regular constrictions of the ductus bursae are coarser than in *indica*.

DISTRIBUTION. Sumatra, Borneo (Sarawak), Sulawesi.

MATERIAL EXAMINED.

SULAWESI (S.W. Celebes): 1 ♀, Goa Malino, 3600′, vi. 1938 (*Kalis*) (genitalia slide no. 19732; BMNH).

SUMATRA: 1 ♀, W. Sumatra, Lebong Tandai, 1920–23 (*Brooks*) (genitalia slide no. 19733; BMNH).

Tinissa dohertyi sp. n.

(Pl. 4, fig. 28; Pl. 14, fig. 88; Text-fig. 8)

♂ unknown.

♀. 20 mm. Head rubbed bare; labial palpus whitish, second segment brownish above and on outer face, terminal segment damaged. Antenna broken but scape dull whitish. Thorax and tegula whitish posteriorly, brown anteriorly. Fore wing medium brown with creamy white transverse striae. Hind wing brownish grey, darker spots at apex; fringe of anal angle light brown with greyish tint. Legs whitish, damaged or missing, but one fore leg intact though rubbed: first and fourth tarsal segments banded with brown. Hind leg with greyish-ochreous tibial tuft, tip of tuft dark grey; tarsus brown above; spurs with dark brown streak below apex.

GENITALIA ♀ (Pl. 14, fig. 88; Text-fig. 8). Eighth sternite produced posteriorly, with deep ventral keel and posterior medial emargination to nearly one-half. Ostium deeply sunk within posterior lobes of eighth sternite. Antrum slightly tapering from ostium, bulbous at point of junction with ductus seminalis; anterior portion narrow, expanded slightly at tip. Eighth tergite with posterior medial emargination and internal longitudinal folds forming lightly sclerotized lobes either side of ovipositor.

REMARKS. *T. dohertyi* is closely allied to *T. transversella* but the posterior tips of the eighth sternite are more elongate; the eighth tergite has a deeper posterior medial emargination; the antrum is narrower, sclerotization not continued into the regular constrictions of the ductus bursae; the keel of the eighth sternite is not as deep in *transversella* as in *dohertyi*.

DISTRIBUTION. Moluccas (Ambon I.).

MATERIAL EXAMINED.

Holotype ♀, AMBON I. (Amboyna): 1892 (*Doherty*) (genitalia slide no. 19740; BMNH).

Tinissa bakeri sp. n.

(Pl. 9, fig. 56)

[*Tinissa baliomicta* Meyrick; Diakonoff, 1967 : 279 (partim – 1 ♂ only). Misidentification.]

♂. Head whitish, mixed with brown on vertex. Labial palpus whitish, brown above, tuft of second segment mixed with grey. Antenna white, ochreous below, a few brown scales above on scape and first two segments. Thorax and tegula dull brown with broad transverse whitish medial band. Fore wings missing. Hind wing whitish, grey-brown on veins, fringe whitish. Legs [glued to polyporus] whitish; fore tibia blackish brown above, first and fourth tarsal segments banded with blackish brown. Mid tibia with two broad oblique light greyish brown bands, first mid tarsal segment banded with light greyish brown. Hind tibial tuft distally light greyish brown, first tarsal segment with light greyish brown transverse band; three distal segments of hind tarsus missing. Spurs with greyish brown streak below apex.

♀ unknown.

GENITALIA ♂ (Pl. 9, fig. 56). Corema present in eighth segment. Saccus short, very broad. Uncus lobes tapered, tips sharp, slightly curved. Subscaphium narrow posteriorly, broadened anteriorly and invaginated ventrad to form pair of heavily sclerotized, finely spined digitate processes. Juxta reduced, with deep medial emargination to form V-shaped process, tips of juxta arms broadened with inwardly directed spine. Valves divided into two lobes by deep medial notch: outer, ventral lobe rounded at tip; inner, dorsal lobe more elongate, tip produced into ventrally directed spine. Pair of lobate labides dorsal to anellus. Aedeagus stout, tapering apically, curved.

REMARKS. *T. bakeri* is closely allied to *T. indica*, the only other known species with a similarly modified subscaphium, but in *indica* the juxta is very stout, forming a pair of club-like processes curved over the valves. The process from the membrane between valve and juxta present in *indica* may be homologous with the dorsal lobe of the valve of *bakeri*: in the latter species there is a ventral membranous zone between the dorsal lobe of the valve and the remainder of the valve but on the ventral and inner face sclerotization is continuous.

DISTRIBUTION. Philippines (Luzon I.).

MATERIAL EXAMINED.

Holotype ♂, PHILIPPINES: Luzon I., Mt Makiling (*Baker*) (genitalia slide no. L 01; RNH, Leiden).

Tinissa insularia sp. n.

(Pl. 5, figs 29, 30; Pl. 9, fig. 57; Pl. 14, fig. 87)

[*Tinissa chloroplocama* Meyrick, 1938, *Trans. R. ent. Soc. Lond.* **87** : 526 (partim – 1 ♀ only). Misidentification.]

[*Tinissa torvella* Walker; Diakonoff, 1948, *Treubia* **19** : 218. Misidentification.]

[*Tinissa torvella* Walker; Diakonoff, 1967 : 279, figs 428–432, 775. Misidentification.]

♂. 17–21 mm. Similarly patterned to ♀ but ground colour of legs much lighter so that dark markings are accentuated.

♀. 19–30 mm. Head cream, few brown scales near eyes. Labial palpus whitish, second segment brown on outer face and on tuft; terminal segment with blackish brown band at one-half. Antenna brownish, first two segments with darker scales above, scape whitish. Thorax and tegula dull brownish, lighter posteriorly. Fore wing dull brown with irregular, small, paler spots forming indistinct transverse striae, spots larger, whitish, at end of cell, on costa and at termen and forming a large, distinct spot on posterior margin at one-half; fringe greyish. Hind wing greyish-ochreous, apex with few darker dots; fringe whitish, scales greyish ochre from a little beyond bases to one-half. Legs light ochreous with greyish tint, hind tibial tuft greyish brown at apex. Fore tibia and tarsus dull grey above, few whitish scales at articulations. Mid tibia with two broad, ill-defined, greyish oblique bands on outer face, tarsal segments each with greyish spot above. First hind tarsal segment banded with greyish brown, second to fifth segments with greyish brown spot above. All spurs with greyish brown streak below apex.

GENITALIA ♂ (Pl. 9, fig. 57). Corema present in eighth segment, elongate, extending to anterior edge of seventh segment. Posterior margin of eighth segment more heavily sclerotized than usual in this genus, rounded, with closely packed scale-insertions. Saccus triangular, short. Uncus elongate, clubbed at tips, with transverse ridges across tips; elongate setae on dorsal surface. Juxta broad, enlarged, projecting dorsad posterior to valves which are reduced except for short, blunt dorsal process. Process from membrane between valve and juxta flattened, ovate. Labides fused to form conical projection dorsal to anellus; sclerotization extended short way anteriorly across membrane between valves, ventrally to form square, sclerotized plate on basal wall of anellus. Aedeagus short, narrow, with very small, short carina below tip.

GENITALIA ♀ (Pl. 14, fig. 87). Eighth sternite projecting posteriorly with small V-shaped medial emargination forming ventral lip of terminal ostium. Antrum very short, tapering anteriorly; junction with ductus seminalis at one-half, point of junction sclerotized. Ductus bursae tapering posteriorly, regular constrictions very fine. Eighth tergite with broad, moderately deep U-shaped medial emargination.

REMARKS. *T. insularia* is a distinctive species; the fore wing markings are diagnostic, the white marks at the end of the cell smaller and less conspicuous than in *T. goliath* but the pale marks at one-half of the posterior margin of the fore wing are larger. The ♂ genitalia are close to those of *T. parallela* but the uncus is more elongate, more pronouncedly clubbed, the aedeagus not as elongate, the carina situated near the apex, not at two-thirds. The ♀ paralectotype of *T. chloroplocama* (below) has deformed genitalia with gynandromorph characteristics, the seventh tergite and sternite much deeper than is normal in females of this genus.

DISTRIBUTION. Malaya, Borneo, Sumatra, Java, Celebes (Kabia I.), Moluccas (Halmahera, Ambon, Buru), Philippines (Luzon, Mindanao, Palawan), New Guinea (Papua, Karkar I.), Solomon Is (Rendova I., Rennell I.).

MATERIAL EXAMINED.

Holotype ♀, JAVA: 192– (*Kalshoven*) (genitalia slide no. 19743; BMNH).

Paratypes. MALAYA: 1 ♀, Perak, Padang Rengas – low country, 1891 (*Doherty*) (BMNH); 1 ♂, Penang, Waterfall v., 14.iii.–18.iv.1898 (*Curtis*) (genitalia slide no. 19774; BMNH). BORNEO: 1 ♀, Sarawak, 1961–2 (*Wallace*) (BMNH); 1 ♀, Sarawak, 1908 (*W.B.*) (genitalia slide no. 19747; BMNH); 1 ♀, Dutch West Borneo, 85 miles above Pontianak, Sanggan, iv. 1909 (*Simons & Meligan*) (BMNH). JAVA: 2 ♀, 192– (*Kalshoven*) (BMNH). CELEBES: 1 ♂, Kabia I. [Seleyer], Somarisi, 1660′, xii. 1938 (*Kalis*) (genitalia slide no. 19739; BMNH). MOLUCCAS: 2 ♀, Halmahera, 1892 (*Doherty*) (genitalia slide nos. 19738, 19746; BMNH); 1 ♀, Ambon I., 1892 (*Doherty*) (genitalia slide no. 19323; BMNH); 1 ♀, Buru, Station 9, 30.vi.1921 (*Toxopeus*) (genitalia slide no. L 02; RNH, Leiden). PHILIPPINES: 3 ♀, 12 ♂, Luzon I., Mt Makiling (*Baker*) (genitalia slide nos. W 01, W 03, 5264, 5274; USNM, Washington [but 1 ♀ in RNH, Leiden and 1 ♂ in BMNH]; 1 ♀, Palawan I., Puerto Princesa, x. 1925 (genitalia slide no. 5263; USNM, Washington); 1 ♀, Mindanao I., Mt Apo School, 15 km SW. of Davao, 500 m, 22–31.x.1965 (*Davis*) (USNM, Washington). NEW GUINEA: 1 ♀, Papua, Mafulu, 4000′ (*Cheesman*) (genitalia slide no. 19788; BMNH) (paralectotype of *chloroplocama* Meyrick); 1 ♂, Karkar I., ii. 1914 (*Meek*)

(BMNH). Solomon Is.: 1 ♂, Rendova I. (*Meek*) (genitalia slide no. 19771; BMNH); 1 ♀, Rennell I., Hutuna, 1–5.xi.1953 (*Bradley*) (genitalia slide no. 19729; BMNH). Sumatra (North): 3 ♂, 2 ♀, Dolok Merangier, 180 m, various dates 1969, 1970 (*Diehl*) (MAK, Bonn); 1 ♀, Ketambe, 40 km NW. of Kutatjane, 300–500 m, 10–18.vi.1972 (*Roesler & Küppers*) (MAK, Bonn).

Tinissa goliath **sp. n.**

(Pl. 5, fig. 31; Pl. 15, fig. 90)

♂ unknown.

♀. 25 mm. Head white. Labial palpus whitish, brown on outer surface of second segment and tuft; terminal segment with brown dot on outer surface a little beyond one-half, few brown scales at base. Antenna brownish; scape and base of first segment white. Thorax and tegula light brown, tegula dark brown anteriorly. Fore wing greyish brown with a purplish sheen, marked with white spots, these concentrated at costa, posterior margin and end of cell and interspersed with smaller light greyish brown spots; fringe greyish brown. Hind wing light brownish grey, darker with scattered lighter maculae at apex; fringe light brownish grey, scales whitish at base. Legs whitish, hind tibial tuft greyish posteriorly. Fore leg heavily marked with dull brownish grey above, few whitish scales at articulations; mid leg similar, tibia with two grey oblique bands on outer face. Hind tarsus with two large dark greyish brown spots on first segment above, smaller spots on second, third and fourth segments. All spurs with greyish brown streak below apex.

Genitalia ♀ (Pl. 15, fig. 90). Eighth sternite produced posteriorly with small but distinct posterior keel. Ostium terminal, very small; ventral margin with V-shaped indentation; dorsal margin deeply emarginate. Antrum extremely small, posteriorly bulbous, short. Ductus bursae broadened anteriorly, regular constrictions very fine and close-set. Eighth tergite protruding posteriorly; very small indistinct medial indentation in posterior margin.

Remarks. The white fore wing markings of *T. goliath* are larger and more pronounced, especially the markings at the end of the cell, than in *T. insularia* in which the whitish mark at one-half of the posterior margin is much more pronounced. The ostium and antrum of *goliath* are much narrower than in *insularia*; the posterior margin of the eighth sternite is broader. The eighth tergite of *goliath* lacks the deep U-shaped posterior emargination present in *insularia*.

Distribution. New Guinea.

Material examined.

Holotype ♀, New Guinea: [central W. Irian] Mt Goliath, 5–7000′ (*Meek*) (genitalia slide no. 19754; BMNH).

Tinissa kidukaroka **sp. n.**

(Pl. 5, fig. 32; Pl. 15, fig. 91; Text-fig. 9)

♂ unknown.

♀. 21 mm. Head white, few brown scales near eyes. Labial palpus whitish, blackish brown above and on external face, second segment and tuft; third segment missing. Antenna broken; scape white, first flagellar segment blackish brown above. Thorax whitish, tegula brown shading to cream posteriorly. Fore wing blackish brown patterned with white spots,

spots particularly large at margins and coalesced at end of cell, basal two-thirds of wing badly rubbed; fringe greyish brown, scales paler basally, apical and tornal white spots continued into fringe. Hind wing pale brownish grey, darker at distal margin, with a few pale apical spots; fringe greyish, scales paler basally. Legs whitish, hind tibial tuft light brownish grey. Fore leg damaged. Mid femur-tibia joint black above, tibia with two oblique greyish brown bands on outer face; first tarsal segment with blackish medial band, third and fourth segments with blackish spot above. Hind tarsus similarly marked to mid tarsus. All spurs with blackish brown streak below apex.

Genitalia ♀ (Pl. 15, fig. 91; Text-fig. 9). Eighth sternite with well developed ventral keel accommodating ostium and antrum; ventral lip of ostium squarely emarginate to nearly one-half length of posterior sclerotized portion of antrum; dorsal margin of eighth sternite with shallow, **V**-shaped medial emargination. Antrum **8**-shaped, anterior bulbous region membranous at point of junction with ductus seminalis; anteriorly a sclerotized ring posterior to point of junction with ductus bursae. Regular constrictions of ductus bursae very fine. Eighth tergite with broad **U**-shaped posterior medial emargination.

Remarks. *T. kidukaroka* is closely allied to *T. goliath* but the white tornal markings of the fore wing are much heavier. The ostium is broader, its ventral lip much more deeply emarginate than in *goliath*; the antrum is longer and the eighth tergite has a deep medial emargination not present in *goliath*.

Distribution. Borneo.

Material examined.

Holotype ♀, Borneo: N. Borneo, Kidukarok, 25.viii.1956 (*Cambridge University Expedition*) (genitalia slide no. 19744; BMNH).

Tinissa insignis Zagulajev

(Pl. 5, fig. 33; Pl. 15, fig. 92; Text-fig. 10)

Tinissa insignis Zagulajev, 1972, *Trudȳ zool. Inst. Leningr.* **52** : 350, figs 18a, 18b. Holotype ♀, Java: Nongkodjadjar, 6.viii.1934 (genitalia slide no. 23; RNH, Leiden) [examined].

♂ unknown.

♀. 28 mm. Head whitish, vertex light brown. Labial palpus whitish, tuft of second segment dark, dull brown, few white scales distally; terminal segment denuded of scales. Antenna brownish, scape with few remaining ochreous cream scales. Thorax rubbed, ochreous cream, tegula dull brown, paler posteriorly. Fore wing dark purplish brown with ochreous-whitish maculae, most pattern detail obliterated; fringe mixed dull brown and brownish white. Legs brownish white. Fore leg blackish brown above, mid tibia with two blackish brown oblique stripes externally, fore and mid tarsal segments with darker bands, hind legs missing.

Genitalia ♀ (Pl. 15, fig. 92; Text-fig. 10). Eighth sternite tapered, setose, narrow posterior emargination with ridges either side rising to meet ventral margin of ostium at nearly one-half length of sternite: ostial margin almost perpendicular to and level with ridges. Antrum shorter than ridges with lobe-like internal projection from ventral wall. Eighth tergite with very deep medial emargination posteriorly, small, bilobed, anteriorly directed pouch at one-eighth anterior margin.

Remarks. *T. insignis* is not closely allied to any other *Tinissa* species but the ♀ genitalia resemble those of *T. parallela*. *T. insignis* is larger than *parallela*, the pouch in the eighth tergite smaller, not at the anterior margin but at one-eighth from it. The ventral margin of the ostium is a sharp edge, not rounded as in *parallela*.

DISTRIBUTION. Java.

MATERIAL EXAMINED.
Holotype only.

Tinissa phrictodes Meyrick

(Pl. 5, figs 34, 35; Pl. 9, fig. 58; Pl. 15, fig. 93)

Tinissa phrictodes Meyrick, 1910, *Trans. ent. Soc. Lond.* **1910** : 477. LECTOTYPE ♀, SOLOMON Is.: Choiseul I., 1905 (*Meek*) (genitalia slide no. 19783; BMNH), here designated [examined].

♂. 16–18 mm. Similarly patterned to ♀ but antenna whitish, first and second flagellar segment with few brown scales above. Fore wing with white markings much more numerous and close-set than in ♀; dark termen conspicuous. Hind wing greyish white, veins darker, apex greyish brown; fringe paler than in ♀. Legs whiter than those of ♀ so dark markings more conspicuous, hind tarsus with dark brown spots above on first to fourth segments, dark scaling extended to form band on first segment.

♀. 21 mm. Head whitish, few brown scales near eyes. Labial palpus whitish, second segment brown above and on outer face; outer surface of tuft brown; terminal segment with brownish streak from one-half on outer face, few brown scales at base. Antenna brownish, scape and first flagellar segment white. Thorax and tegula light brown, tegula with medial transverse white band. Fore wing light creamy brown, rather darker at termen, patterned with whitish spots, spots large at costa and posterior margin, coalescing at end of cell; fringe light grey, scales paler at base. Hind wing light brownish grey, apex darker, few pale subapical spots; fringe light grey, scales paler at base. Legs ochreous-whitish, hind tibial tuft brownish grey. Fore leg dark grey above, two triangular white marks on outer face of tibia, second and fifth tarsal segments white, some whitish scales on adjoining segments. Mid tibia with two diffuse, oblique greyish bands on outer face, brownish grey bands on first, third and fourth tarsal segments. Hind tarsus with first segment brownish from one third, few brownish scales at base. All spurs with brownish streak from below apex almost to base.

GENITALIA ♂ (Pl. 9, fig. 58). Corema absent from eighth segment. Saccus elongate, triangular. Uncus lobes divergent, supported on broadened section of vinculum two-thirds as deep as saccus. Tips of uncus lobes turned inward, bearing line of dense, short spines. Subscaphium distinctly V-shaped. Juxta a narrow, heavily sclerotized ring ventral to anellus, nearly complete dorsally, forming pair of horn-like dorsal processes. Transtilla present, forming broad bar between valves dorsal to juxta processes. Valve elongate, tip heavily sclerotized, pointed, directed ventrad. Aedeagus short and stout.

GENITALIA ♀ (Pl. 15, fig. 93). Eighth sternite almost square, posterior third setose; small, shallow V-shaped posterior emargination; ostium situated at three-quarters. Ventral lip of ostium with very deep, narrow, V-shaped medial emargination. Antrum extremely short. Ductus bursae broad, only five or six ill-defined regular constrictions posteriorly. Eighth tergite with broad, shallow V-shaped medial emargination posteriorly.

REMARKS. The ♂ of *phrictodes* differs from other *Tinissa* species in the degree of dorsal broadening of the vinculum, possessing a V-shaped subscaphium and in the characteristic shape of the juxta and uncus. The ♀ may be recognized by the long and tapering bursa copulatrix and the extremely short and inconspicuous section of the ductus bursae which is regularly constricted. The position of this species is obscure; the structure of the uncus is similar to that of *T. polystacta* but *phrictodes* has a three-segmented maxillary palpus whereas the palpus of *poly-*

stacta is five-segmented. The ♀ specimen from New Ireland has a small sclerotized area on the wall of the bursa copulatrix. This is the only case of sclerotization of the bursa noted in this subfamily: it is considered to be a freak.

DISTRIBUTION. New Ireland, Solomon Is. (Choiseul, Rendova, Vella Lavella Is.).

MATERIAL EXAMINED.

SOLOMON IS.: 1 ♂, Choiseul I., 1905 (*Meek*) (genitalia slide no. 19784; BMNH) [paralectotype]; 1 ♂, Rendova I. (*Meek*) (genitalia slide no. 19720; BMNH); 1 ♀, Vella Lavella I., ii–iii. 1908 (genitalia slide no. 19722; BMNH). NEW IRELAND: 1 ♀, xii. 1923 (*Eichhorn*) (genitalia slide no. 19745; BMNH).

Tinissa poliophasma Bradley

(Pl. 5, fig. 36; Pl. 16, fig. 98)

Tinissa poliophasma Bradley, 1965, *Ruwenzori Exped. 1952* **2** : 115, figs 56, 204, 205. Holotype ♀, UGANDA: Ruwenzori Range, Semliki Forest, 2850′, 22.viii.–3.ix.1952 (*Fletcher*) (genitalia slide no. 8483 [Bradley]; BMNH) [examined].

Tinissa poliophasma Bradley; Gozmány & Vári, 1973 : 86, fig. 226 [redescription].

♂ unknown.

♀. 19 mm. Head white with few brown scales near eyes. Labial palpus white, first and second segments brown above, tuft mixed with brown; terminal segment with brown spot on outer face a little beyond one-half. Antenna light ochreous, scape white, scales of pecten tipped with brown, first flagellar segment brown above; cilia extremely short. Thorax and tegula white, light brown anteriorly. Fore wing light brown, darker at termen, marked with close-set lighter transverse striae, conspicuous white marks at costa, conspicuous white basal fascia, large pale spot on posterior margin at one half; fringe ochreous, greyish brown at termen. Hind wing light golden brown with a greyish tint; fringe whitish, scales tinted with light brown from little beyond base to more than one-half of their length. Legs (damaged) ochreous-whitish. Fore leg greyish-ochreous above to tip of tibia, greyish-ochreous spot on upper surface of first tarsal segment. Mid femur-tibia joint brownish, tibia with two light brown oblique bands on outer face, first and fourth tarsal segments with light brown spot above. Hind legs missing.

GENITALIA ♀ (Pl. 16, fig. 98). Eighth sternite almost square; ostium from one half to tip of sternite, in same plane as surface of abdomen; ostium lip slightly protuberant. Antrum extremely short, about half length of ostium. Ductus bursae with regular constrictions very fine, rugose, rugosity appearing as overlapping plates under high (× 250) magnification. Eighth tergite rounded posteriorly.

REMARKS. The wing pattern of this species differentiates it from all other known *Tinissa* species which lack the strongly defined white basal fascia of the fore wing. The extremely short antennal cilia of *poliophasma* are possibly evidence for alliance with *T. ruwenzorica* but the female of the latter species is unknown. This is the only *Tinissa* species in which the ostium is parallel with the abdomen surface; in all other known species it is at least oblique.

DISTRIBUTION. Uganda (Ruwenzori Range).

MATERIAL EXAMINED.

Holotype only.

Tinissa spaniastra Meyrick

(Pl. 6, fig. 37; Pl. 9, fig. 59; Pl. 16, fig. 94)

Tinissa spaniastra Meyrick, 1932, *Trans. ent. Soc. Lond.* **80** : 118. Holotype ♂, ETHIOPIA: Djem-Djem Forest, c. 8000′, 9.x.1926 (*Scott*) (genitalia slide no. 10176 [Gozmány]; BMNH) [examined].

Tinissa spaniastra Meyrick; Gozmány, 1969 : 290 [description of ♀ genitalia].

Tinissa spaniastra Meyrick; Gozmány & Vári, 1973 : 85, figs 223, 224 [redescription].

♂. 25 mm. Similarly patterned to ♀ but legs with all tarsal segments except first (as ♀) brown to at least two-thirds except for fifth tarsal segment which is white. Antennal cilia longer than in ♀ but still only one-half diameter of shaft.

♀. 20, 27 mm. Head cream, few brown scales near eyes. Labial palpus cream, second segment and tuft brown on outer surface; terminal segment ringed with dark brown at one-half. Antenna, including scape, brownish; first flagellar segment nearly black above; cilia very short. Thorax and tegula dark brown, thorax with few white scales posteriorly. Fore wing dark brown, darker at costa and termen, boldly marked with white spots, most conspicuous spot on costa at two-thirds; fringe brown. Hind wing light brownish ochre with numerous paler maculae, ground colour darker towards apex; fringe light ochreous. Legs ochreous to white, hind tibial tuft greyish brown. Fore leg dark brown above, some white scales at articulations, fifth tarsal segment white. Mid tibia with two broad, oblique brown bands on outer face, first tarsal segment with broad brown medial ring; remaining segments missing. First hind tarsal segment with rough brown scaling above for two-thirds; second and third segments brown basally, remainder missing. All spurs with dark brown streak below apex.

GENITALIA ♂ (Pl. 9, fig. 59). Corema present in eighth segment. Saccus triangular, elongate. Uncus lobes broad, tips produced into inwardly directed spines. Juxta forming pair of broad lateral projections with sharp dorsal tips; valve reduced, conical; process from membrane between valve and juxta long, finger-like, reaching tip of juxta. Labides fused and forming large hood-like projection dorsal to valves. Aedeagus slender, tapering, with line of fine spicules running full length, scattered at base and dense at tip.

GENITALIA ♀ (Pl. 16, fig. 94). Eighth sternite long and narrow, line of fine spines at posterior margin; ostium almost as long as sternite, tapering posteriorly, angled obliquely to plane of sternite, ventral lip V-shaped. Antrum short, three-quarters length of eighth sternite, slightly tapering anteriorly, only lightly sclerotized at point of junction with ductus seminalis. Regular constrictions of ductus bursae very fine, minutely rugose. Eighth tergite rounded posteriorly with about twelve coarse spines at margin.

REMARKS. *T. spaniastra* is allied to *T. poliophasma* but the ostium, antrum and ductus bursae are broader; the ostium is not flush with the surface of the eighth sternite; the rugosity of the ductus bursae is much coarser in *poliophasma*. The ostium of *spaniastra* tapers posteriorly but is almost rectangular in *poliophasma*. The fore wing pattern of this species is sufficiently distinctive to be diagnostic, the major distinguishing feature being the large white costal spot. Gozmány's dissection of the holotype of this species is not really suitable for critical examination. The genital armature has been so badly crushed that I am loth to attempt to remount the preparation. Gozmány & Vári's (1973) description of the male genitalia of *spaniastra* should be ignored as all components within the vinculum with the exception of the aedeagus are misidentified (see 'Morphology'). The 'cornuti' of the same authors are fine spicules on the outer surface of the aedeagus.

DISTRIBUTION. Ethiopia, Tanzania.

MATERIAL EXAMINED.

ETHIOPIA: 2 ♀, Maraco, 20. ix., 30.x.1915 (*Kovacs*) (genitalia slide no. 19795; BMNH).

Tinissa ruwenzorica Gozmány

(Pl. 6, fig. 38; Pl. 10; figs 60, 61)

Tinissa ruwenzorica Gozmány, 1966, *Acta zool. hung.* **12** : 68, fig. 18. Holotype ♂, UGANDA: Ruwenzori Range, Mahoma River, 6700′, 13–16.viii.1952 (*Fletcher*) (genitalia slide no. 12013 [Gozmány – remounted Robinson]; BMNH) [examined].

Tinissa ruwenzorica Gozmány; Gozmány & Vári, 1973 : 85, fig. 225 [redescription].

♂. 17 mm. Head whitish, few brown scales laterally. Labial palpus whitish, first and second segment and tuft flecked with dark brown on outer face; terminal segment with dark brown spot on outer face a little beyond one half. Antenna ochreous-whitish, first flagellar segment dark brown above; scape white; cilia extremely short. Thorax and tegula white, dark brown anteriorly. Fore wing dark blackish brown heavily striated with cream mixed with light brown, striations concentrated basally and in postmedial fascia, blackish terminal line, tornus almost uniformly blackish brown; fringe greyish, whitish at termen and mixed with brown posteriorly. Hind wing whitish, few dark maculae at termen; fringe whitish. Legs whitish, hind tibial tuft greyish brown. Fore leg dark grey above. Mid femur-tibia joint grey, tibia with two dark grey oblique bands on outer face, first tarsal segment with grey spots basally and at one-half above, tarsus otherwise grey above. Hind tarsus similarly patterned, dark grey raised scales basally on upper surface of first segment. All spurs with subapical brown ring.

♀ unknown.

GENITALIA ♂ (Pl. 10, figs 60, 61). Corema present in eighth segment, corematal scales coarse, needle-like. Eighth sternite moderately sclerotized, produced posteriorly at corner to form slightly curved and tapering process. Saccus elongate, triangular. Uncus lobes short, rounded, each with digitate lateral projection. Juxta produced posteriorly, narrow, terminating in pair of clubbed, cygnate processes. Valve short, conical. Process from membrane between valve and juxta broad, flat, parallelogram-shaped, as long as valve. Labides fused, forming short projection dorsal to anellus. Aedeagus slender and tapering, small carina just below apex.

REMARKS. Although allied to *T. torvella*, possessing a similarly modified eighth sternite, *ruwenzorica* differs in having very short antennal cilia and in the modification of the juxta which is reminiscent of that of *T. bakeri*. The form of the uncus of *ruwenzorica* is distinct – as is the external appearance – from that of all other known *Tinissa* species. The original and subsequent descriptions of this species's genitalia are inaccurate, as are the illustrations.

DISTRIBUTION. Uganda (Ruwenzori Range).

MATERIAL EXAMINED.

Holotype only.

Tinissa torvella Walker

(Pl. 6, fig. 39; Pl. 10, figs 62, 63; Pl. 16, figs 95, 96)

Tinissa torvella Walker, 1864 : 780.

♂. 16–24 mm. Similarly patterned to ♀ but elongate scales of vertex all whitish, transverse whitish band across thorax and tegula broader.

♀. 20–32 mm. Head whitish, mixed with blackish brown near eyes and on vertex. Labial palpus whitish, second segment and tuft blackish brown on outer face, terminal segment with blackish brown spot on outer surface at base, blackish brown band at two-thirds. Antenna brownish, blackish above, scape white, scales of pecten tipped with black, first two flagellar segments black above. Thorax and tegula blackish brown with medial white transverse band. Fore wing blackish brown marked with numerous small white spots, spots larger and conspicuous at margins, in an ill-defined basal line and at end of cell; fringe blackish brown, scales paler basally, marginal white spots extended into fringe. Hind wing light brownish grey, whitish maculae at apex; fringe light grey mixed with off-white, pale apical spots extended into fringe. Legs greyish white, hind tibial tuft grey. Fore femur dark grey above, tibia and first tarsal segment grey; second and fourth tarsal segments banded with blackish. Mid tibia dark brownish grey above for proximal third; two oblique dark brownish grey bands on outer face; first tarsal segment with blackish medial band, fourth segment blackish. First and fourth hind tarsal segments banded with blackish. All spurs with long blackish streak below apex.

Genitalia ♂ (nominate subspecies only – Pl. 10, figs 62, 63). Corema present in eighth segment. Eighth sternite produced posteriorly at corner to form conspicuous, finely spined, club-shaped projection. Saccus broad, elongate. Uncus arms narrow, tapering. Subscaphium broad anteriorly. Juxta dish-shaped, almost surrounding aedeagus, not closely appressed to valve. Process from membrane between valve and juxta elongate and conspicuous, internal surface setose. Valve tooth-shaped, reaching three-quarters length of process. Base of anellus sclerotized dorsally, possibly representing labis.

Genitalia ♀ (Pl. 16, figs 95, 96). Eighth sternite broad anteriorly, abruptly narrowed at one-third or one-half and produced posteriorly as elongate, dome-like structure; dorsal durface of this 'dome' with or without setae, reflexed anteriorly to form shallow pouch, base of which is level with anterior tip of antrum or at one-half. Ostium terminal, small; antrum narrow posteriorly, bulbous and only thinly sclerotized at point of junction with ductus seminalis. Anterior portion of antrum one-quarter length of posterior and three times as broad. Eighth tergite with deep U-shaped posterior medial emargination.

Remarks. The modification of the male eighth sternite differentiates this from all other known *Tinissa* species with the exception of *T. ruwenzorica* in which the uncus lobes are rounded with a small but conspicuous lateral projection. The female genitalia are characterized by the large, dome-like posterior projection. Described material is fresh; older material is faded to a dull brown. This species is represented by two subspecies, described below.

Distribution. Sri Lanka (Ceylon), India (Mysore).

Tinissa torvella torvella Walker

(Pl. 6, fig. 39; Pl. 10, figs 62, 63; Pl. 16, fig. 95)

Tinissa torvella Walker, 1864, *List Specimens lepid. Insects Colln Br. Mus.* **29** : 780. Holotype ♂, [Sri Lanka (Ceylon):] 'Assam?' [erroneous] (genitalia slide no. 10344 [Gozmány]; BMNH) [examined].

Genitalia ♂ (Pl. 10, figs 62, 63). See description above.

Genitalia ♀ (Pl. 16, fig. 95). Differs from *torvella mysorensis* in that the eighth sternite is narrowed at one-third rather than one-half, dorsal surface of posterior 'dome' without setae, reflexed anteriorly to form shallow pouch, base of which is level with anterior tip of antrum, not at one half of antrum as in *torvella mysorensis*. Antrum shorter and narrower than in *torvella mysorensis*.

REMARKS. The nominate subspecies of *T. torvella* is differentiated from *T. torvella mysorensis* on characteristics of the ♀ genitalia as described above; it is not separable from *torvella mysorensis* by external characteristics.

DISTRIBUTION. Sri Lanka (Ceylon).

MATERIAL EXAMINED.

SRI LANKA [Ceylon]: 1 ♂, Maskeliya, viii. 1905 (*de Mowbray*) (USNM, Washington); 1 ♀, Maskeliya, vi. 1905 (*de Mowbray*) (genitalia slide no. 19752; BMNH); 5 ♀, 1 ♂, Kandy, 1600′, iii, iv, v, viii, 189–, 1909, 1911 (*Pole, Mackwood*) (genitalia slide nos. 19753, 19758, 19799 [wings]; BMNH); 1 ♀, Peradeniya, viii. 1905 (*Green*) (BMNH); 2 ♀, W. Matale, 400′, 189– (*Mackwood*) (BMNH); 1 ♀, 3 ♂, Nawalapitiya, 2000′, 189– (*Pole*) (genitalia slide no. 19757; BMNH); 1 ♂, Colombo, 1891 (*Mackwood*) (genitalia slide no. 19322; BMNH); 1 ♀, N. Chiga, 6000′, v. 1902 (*Mackwood*) (BMNH); 1 ♀, Kan District, Kandy, 2100′, Uddawatakele Sanc., 10–23.i.1970 (*Davis & Rowe*) (USNM, Washington); 1 ♀, Keg District, Lavant Estate, nr Yatiyantota, 80′, 19.xi.1970 (*Flint*) (USNM, Washington); 1 ♂, Maskeliya, ix.1905 (*Alston*) (genitalia slide no. 19748; BMNH).

***Tinissa torvella mysorensis* subsp. n.**

(Pl. 16, fig. 96)

GENITALIA ♂ unknown.

GENITALIA ♀ (Pl. 16, fig. 96). Similar to *torvella torvella* but posterior projection of eighth sternite not as elongate, dorsally setose, not extending beyond tips of eighth tergite. Ostium situated slightly more ventrally; antrum almost three times as wide as in nominate subspecies and longer; bulbous and lightly sclerotized portion of antrum at point of junction with ductus seminalis larger than in *torvella torvella* and with three shallow lateral folds, wall deeply invaginated to form internal process partly blocking antrum immediately posterior to junction with ductus seminalis.

REMARKS. Differentiated from *T. torvella torvella* on characteristics of the ♀ genitalia as above, *T. torvella mysorensis* is not separable from the nominate subspecies on external characteristics.

The holotype has a wing-span of 27 mm.

DISTRIBUTION. India (Mysore).

MATERIAL EXAMINED.

Holotype ♀, INDIA: Mysore Prov., W. Ghats, Balehonnur, Netraconda, 2800–3800′, in bungalow, prob. at lights (*Evetts*) (genitalia slide no. 19755; BMNH).

Tinissa polystacta (Meyrick)

(Pl. 6, fig. 40; Pl. 16, fig. 97)

Scardia polystacta Meyrick, 1918, *Ann. Transv. Mus.* **6** : 47. Lectotype ♀, SOUTH AFRICA: Natal, New Hanover, iii. 1913 (*Hardenberg*) (genitalia slide no. 8113 [Vári]; TM, Pretoria) [not examined].

Polymnestra perilithias Meyrick. 1927, *Exot. Microlepidopt.* **3** : 331. Holotype ♂, SOUTH AFRICA: Transvaal, Woodbush, 11.i.1925 (*Janse*) (genitalia slide no. 8044 [Vári]; TM, Pretoria) [not examined] [synonymized by Gozmány & Vári, 1973 : 86].

Polymnestra perilithias Meyrick; Janse, 1968 : 91, pl. 50, figs 3, 4, pl. 101, figs 9–11 [redescription].

Scardia polystacta Meyrick; Janse, 1968 : 98, pl. 71, figs 3, 4, pl. 105, figs 5–8, pl. 118, fig. 9 [redescription; designation of lectotype].

Tinissa polystacta (Meyrick); Gozmány & Vári, 1973 : 86, figs 227, 228 [redescription; synonymy; new combination].

♂. 11·5 mm. Similarly patterned to ♀; antennal cilia at least double width of flagellar segments. Legs whitish, foreleg as in ♀. Mid tibia with two broad, oblique brown bands on outer face; tarsus whitish, brown medial spot above on first segment, brown spot above at tips of other segments. Hind leg damaged but tibial tuft greyish. All spurs with brownish ring below apex.

♀. 12 mm. Head whitish, few brown scales laterally. Maxillary palpus five-segmented, folded. Haustellum absent. Labial palpus whitish, flecked with brown on outer surface, terminal segment with brownish subapical band. Antenna ochreous-whitish flecked with brown, first flagellar segment dark brown above, cilia one-half width of flagellar segments. Thorax and tegula brown, white posteriorly. Fore wing blackish brown mixed with diffuse orange-brown spots, patterned with conspicuous white spots at margins; fringe dark brownish grey. Hind wing dull brownish grey; fringe dull grey. Only left fore leg remaining, dull ochreous, greyish brown above but banded with whitish at articulations, fifth tarsal segment white.

GENITALIA ♂ (Janse, 1968: pl. 50, fig. 4). Corema absent from eighth segment. Saccus rather short, triangular. Uncus lobes separated by broad membrane, slightly waisted at one-half, densely spined on internal surface towards tip. Subscaphium broad posteriorly with slight medial emargination; rod-like anteriorly. Juxta bifid, projecting posteriorly and hardly displaced dorsally, tips elongate, almost reaching tips of valves. Valve broad basally, elongate, tapering posteriorly, tip hooked slightly inward. Process from membrane between valve and juxta blade-like, reaching three-quarters length of valve. Labis very large, projecting posteriorly, cowl-shaped, reaching tips of uncus. Aedeagus curved, moderately stout, tapered to sharp point from three-quarters.

GENITALIA ♀ (Pl. 16, fig. 97). Eighth sternite short, almost square, two groups of setae at posterior margin; ostium at right angles to plane of sternite. Antrum two-thirds length of sternite, only thinly sclerotized at one-half at point of junction with ductus seminalis. Ductus bursae short, regular constrictions fine; ventral surface of ductus with finely rugose sclerotized plate anteriorly, plate 1·5 times length of antrum. Eighth tergite posteriorly rounded, irregular row of setae on posterior margin.

REMARKS. *T. polystacta* is the smallest *Tinissa* species. The ♀ differs from all other *Tinissa* species in the ventral sclerotization of the ductus bursae. Males show affinities to *T. spaniastra*, possessing a similarly cowl- or hood-shaped labis (or fused pair of labides). The ventral positioning and deep bifurcation of the juxta in *spaniastra* is similar to that in *polystacta*, but the valves of the latter species are much more elongate. The tips of the uncus in *polystacta* are not hooked as in *spaniastra*. The bursa copulatrix is asignate: the 'minute phylliform signum' of Gozmány & Vári (1973 : 87) is a foreign body, apparently a scale. *T. polystacta* is also allied to *T. cultellata*, the only other *Tinissa* species with a five-segmented maxillary palpus – see 'Remarks' for *cultellata*.

DISTRIBUTION. South Africa.

MATERIAL EXAMINED.

SOUTH AFRICA: Natal, 1 ♀, Isputeni, 23.i.1916 (*Janse*) (genitalia slide no. 10318; BMNH) [paralectotype of *polystacta*]; 1 ♂, Umroti, iv. 1892 (*Hutchinson*) (genitalia slide no. 12294; BMNH).

Tinissa cultellata (Gozmány & Vári) **comb. n.**

(Pl. 6, figs 41, 42; Pl. 10, fig. 64)

Leptozancla cultellata Gozmány & Vári, 1973, *Transv. Mus. Mem.* **18** : 87, fig. 230. Holotype ♂, UGANDA: Ruwenzori Range, Mahoma River, 6700′, 13–16.viii.1952 (*Fletcher*) (genitalia slide no. 12022 [Gozmány – remounted by Robinson]; BMNH) [examined].

♂. 17, 19 mm. Head yellowish cream, few brown scales near eyes. Maxillary palpus short, five-segmented, folded. Labial palpus yellowish cream, first and second segment heavily marked with blackish brown on outer surface, terminal segment with diffuse light brown flecks in basal half of outer surface. Antenna, including scape, blackish brown. Thorax yellowish cream, tegula white. Fore wing blackish brown [badly rubbed in both examples] with cream spots at costa and termen, traces of fine cream transverse striae, light dot at end of cell; fringe blackish brown, cream where marginal spots are extended. Hind wing slightly ochreous white, flecked with pale grey anteriorly and towards termen; grey spots at termen extending into whitish fringe. Legs ochreous, flecked with blackish brown, fore leg particularly heavily marked above, hind leg hardly marked. Hind tibial tuft ochreous-whitish, scales sparse [rubbed?]. All spurs with greyish brown streak below apex.

♀. [Wings detached; not in condition suitable for description.]

GENITALIA ♂ (Pl. 10, fig. 64). Corema present in eighth segment. Saccus broad, almost square. Lobes of uncus quite widely separated, fully fused with vinculum, tapered, sharply pointed and heavily sclerotized; small circular basal process, long spine-like lateral process parallel to uncus lobe, small thorn-like lateral process at three-quarters. Subscaphium broad, not heavily sclerotized. Juxta, if present, not separable from valve which is large, heavily sclerotized, with four processes from steep internal surface, all almost reaching tip of valve which is slightly curved inward. Transtilla narrow; labides a pair of appressed lobate processes dorsal to aedeagus [description of transtilla and labides doubtful owing to damage of preparation]. Aedeagus curved, short, stout, tapered from three-quarters.

GENITALIA ♀. Eighth sternite narrow, lightly sclerotized medially, U-shaped posterior medial emargination, line of setae at posterior margin; about eight setae scattered from one-third to posterior margin on each side. Ostium small, anterior, pouch-like; antrum constricted at three-quarters posteriorly, only lightly sclerotized; narrow hemi-cylindrical dorsal sclerotized region on ductus bursae one-quarter length of antrum (see 'Remarks'). Ductus bursae with fine regular constrictions overlaid with fine pimpling, appearing rugose. Corpus bursae double length of ovipositor, narrow and tapering posteriorly. Eighth tergite rather square with line of setae at posterior margin, conspicuous heavily sclerotized ridge arched posteriorly from anterior corners; anterior to ridge a series of six parallel transverse ridges; anterior margin reflected posteriorly to form shallow pouch.

REMARKS. This is a bizarre species which differs from all other *Tinissa* species in several features: like *T. polystacta* it has a five-segmented maxillary palp but is much larger. It lacks the distinctive oblique dark bands on the outer surface of the mid tibia and the tarsal spotting common in other *Tinissa* species. Males are recognizable by their sharp uncus lobes with parallel lateral processes and the cluster of sharp peaks of the valval processes. *T. cultellata* is the only *Tinissa* species in which the juxta cannot be visually separated from the valve and may not even be present. Females are characterized by the very small anterior ostium and short antrum and ductus bursae. Ventral sclerotization of the ductus bursae (see below) and the ridging of the eighth tergite are peculiar to this species. Affinities are vague and are to the other divergent African species, *T. polystacta* (five-segmented maxillary palpus, shape of aedeagus and uncus) and *T. poliophasma* (rugose regular constrictions of the ductus bursae). The ventral sclerotization of the ductus bursae of *polystacta* may be homologous with the dorsal sclerotization of *cultellata*; in *cultellata* sclerotization is anterior to the point of junction with the ductus seminalis and is thus not a colliculum although it bears a striking resemblance to one. Both male genitalia preparations of this species are in poor condition.

DISTRIBUTION. Uganda (Ruwenzori Range).

MATERIAL EXAMINED.

UGANDA: 1 ♀, 1 ♂, Ruwenzori Range, Mahoma River, 6700′, 13–16.viii.1952 (*Fletcher*) (genitalia slide nos. 8462 [Gozmány], 12115 [Robinson]; BMNH).

LEPTOZANCLA Meyrick

Leptozancla Meyrick, 1920, *Voyage Ch. Alluaud R. Jeannel Afr. or.* **2**, Microlepid. : 107. Type-species: *Leptozancla talaroscia* Meyrick, 1920, *ibidem* : 108, by original designation and monotypy.

Leptozancla Meyrick; Fletcher, 1929 : 125 [type-species].

Philagrias Meyrick, 1932, *Trans. ent. Soc. Lond.* **80** : 119. Type-species: *Philagrias zelotica* Meyrick, 1932, *ibidem* **80** : 119, by monotypy. [Synonymized by Gozmány & Vári, 1973 : 87.]

Leptozancla Meyrick; Gozmány & Vári, 1973 : 87 [redescription].

Presence of mandible uncertain – head preparation not made owing to lack of available material. Maxillary palpus five-segmented, folded. Antenna extending to, or almost to, tip of fore wing, with dense whorl of cilia on each segment, cilia length equal to width of segment (*L. talaroscia*) or without cilia (*L. zelotica*). Fore wing narrow, apex oblique (*talaroscia*) or shorter, broader, resembling *Tinissa* (*zelotica*), 8·5–12·0 mm long; *M* present in cell; R_5 just posterior to apex; R_4 and R_5 separate. No elongate oval patch of small, flat, ovate scales on under surface of fore wing between A_{1+2} and posterior margin and no opposing rough scale patch on hind wing. Hind wing with *M* present in cell. Hind tibia with broad, rough, appressed scales, few sparse raised scales proximally (hind tibia of *talaroscia* unknown).

GENITALIA ♂. Corema of similar type to *Tinissa* present in eighth segment but reduced and without hairs in *L. talaroscia*. Saccus large, triangular or rounded apically. Vinculum broad, exceptionally so in *L. zelotica*. Uncus fused with vinculum in *zelotica*, narrow membranous zone between the two in *talaroscia*. Uncus lobes connected by sclerotized bridge in *zelotica*. Juxta large, well developed, with distinct ventral suture or sulcus in *zelotica*. Valve absent. No equivalent to process arising from membrane between valve and juxta as present in most *Tinissa* species. Labides and transtilla highly developed, labides forming elongate, posteriorly directed spines. Subscaphium narrow, short (*talaroscia*) or broad and elongate (*zelotica*). Aedeagus short and rather broad, exceptionally so in *zelotica*.

GENITALIA ♀. Unknown.

Leptozancla talaroscia Meyrick

(Pl. 6, fig. 43; Pl. 10, fig. 65)

Leptozancla talaroscia Meyrick, 1920, *Voyage Ch. Alluaud R. Jeannel Afr. or.* **2**, Microlepid. : 108. Lectotype ♂, KENYA: Mt Kenya, alpine grassland and tree-heath, 3300–3500 m, i–ii. 1912 (*Alluaud & Jeannel*) (genitalia slide; MNHN, Paris) [not examined].

Leptozancla talaroscia Meyrick; Viette, 1951 : 83 [lectotype designated].
Leptozancla talaroscia Meyrick; Gozmány & Vári, 1973 : 87, fig. 229 [redescription].

♂. 25 mm. Head whitish, dark brown near eyes. Labial palpus whitish, first and second segments flecked with brown on outer face. Antenna as long as forewing, light brown, first flagellar segment darker, tip of scape whitish, pecten dark brown; cilia dense, as long as width of flagellar segments. Thorax and tegula dark brown, posterior margins white. Fore wing [rubbed] dark greyish brown, traces of whitish spots at costa; fringe mixed whitish and greyish. Hind wing pale grey; fringe white. Legs rubbed and damaged; fore and mid legs ochreous-whitish with few sparse brownish scales above.

♀ unknown.

GENITALIA ♂ (Pl. 10, fig. 65). Corema absent from eighth segment but shallow pocket with thin, sclerotized bar at base present in tergosternal membrane. Saccus broad, rounded. Uncus fused with vinculum, short and broad, rounded lateral projections at four-fifths. Juxta very large, elongate, projecting posteriorly, with deep rounded posterior emargination; dorsally with pair of curved, stout processes [one with tip broken in illustrated preparation]. Transtilla fused with dorsum of juxta and supporting labides, four elongate, posteriorly directed spines, central pair supporting sclerotized strip reflected anteriorly; subscaphium short, not connecting with anterior extension of labides. Aedeagus short, stout.

REMARKS. *L. talaroscia* is a larger and narrower-winged species than *L. zelotica* in which the juxta has a distinct medial ventral suture and a pair of small finger-like processes at the tip and a pair of lateral flaps. The labides are in the form of only a pair of posteriorly directed spines in *zelotica*.

DISTRIBUTION. Kenya (Mt Kenya).

MATERIAL EXAMINED.

Paralectotype ♂, KENYA: Mt Kenya, 11500′, i. 1912 (*Alluaud & Jeannel*) (genitalia slide no. 12116 [Robinson]; BMNH).

Leptozancla zelotica (Meyrick)

(Pl. 6, fig. 44; Pl. 11, fig. 66)

Philagrias zelotica Meyrick, 1932, *Trans. ent. Soc. Lond.* **80** : 119. Holotype ♂, ETHIOPIA: Djem-Djem Forest, c. 8000′, 5–7.x.1926 (*Scott*) (genitalia slide no. 10177 [Gozmány]; BMNH) [examined].
Leptozancla zelotica (Meyrick) Gozmány & Vári, 1973 : 88, fig. 231 [new combination, redescription].

♂. 18 mm. Head [very rubbed] whitish, brown scales around eyes. Labial palpus ochreous-whitish, blackish brown above and on outer surface of first and second segments, terminal segment with slight brownish flecks on outer surface. Antenna, including scape, ochreous, two-thirds length of forewing, cilia absent, pecten brownish. Thorax and tegula brownish, tegula white posteriorly. Fore wing badly rubbed, some blackish brown scales remaining, traces of yellowish cream spots at costa; fringe mixed grey and whitish. Hind wing light brownish grey; fringe whitish. Legs ochreous flecked with brownish above. Mid tibia with two very broad oblique dark brown bands on outer face, first to third tarsal segments with diffuse brown spot above. Hind tibia [?rubbed] with broad, ochreous appressed scales above, few protuberant scales towards base; second to fourth tarsal segments with diffuse brownish spot above.

♀ unknown.

GENITALIA ♂ (Pl. 11, fig. 66). Corema present in eighth segment. Saccus triangular, vinculum very broad dorsally. Uncus lobes short, fused with vinculum, joined to each other by narrow dorsal sclerotized bridge. Subscaphium broad. Juxta with medial suture ventrally, elongate, distal half with two broad lateral flaps; tip of juxta terminating in two slightly curved finger-like processes. Dorsal surface of juxta with two heavily sclerotized pouch-like recesses. Labides fused with juxta via transtilla; reflected dorsally and anteriorly, then tapering posteriorly as elongate spines with broad, spur-like processes at one half. Aedeagus short and stout, extensive zone of microtrichia at tip.

REMARKS. The antennae of *zelotica* are shorter than in *L. talaroscia*, not thickly ciliate; the wings are narrower and less elongate. The structure of the juxta and labides separates the two species and *talaroscia* does not have a sclerotized 'bridge' between the uncus lobes.

DISTRIBUTION. Ethiopia.

MATERIAL EXAMINED.

Holotype only.

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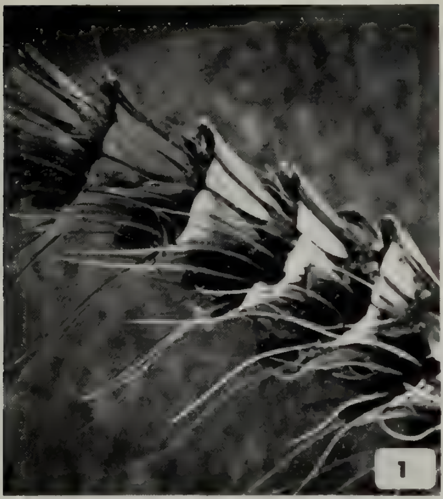
PLATE 1

FIG. 1. *Tinissa torvella* Walker, ♂, Sri Lanka, distal region of antenna, ×250.
FIG. 2. *T. torvella* Walker, ♀, Sri Lanka, antenna, ×550.
FIG. 3. *T. torvella* Walker, ♀, Sri Lanka, specialized scale area on forewing underside, ×80.
FIG. 4. *T. torvella* Walker, ♀, Sri Lanka, specialized scale, ×800.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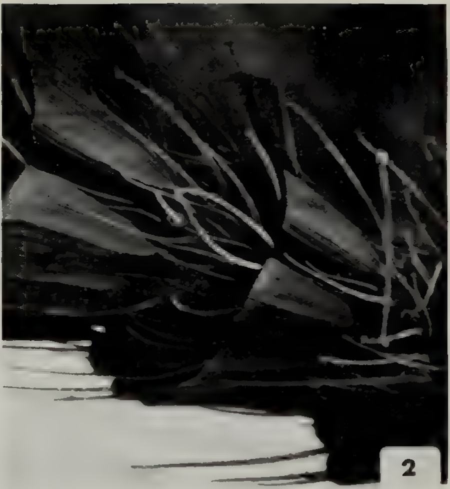
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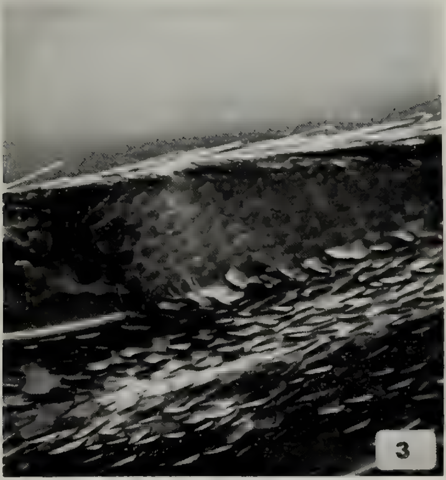
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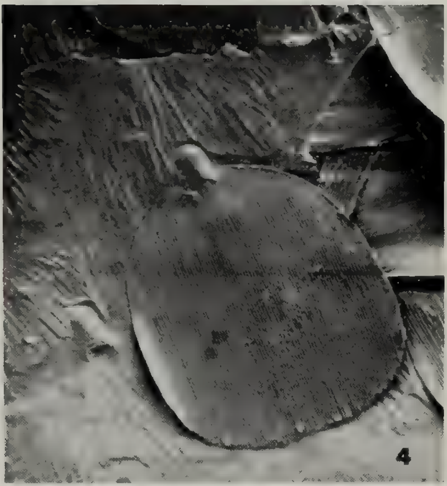
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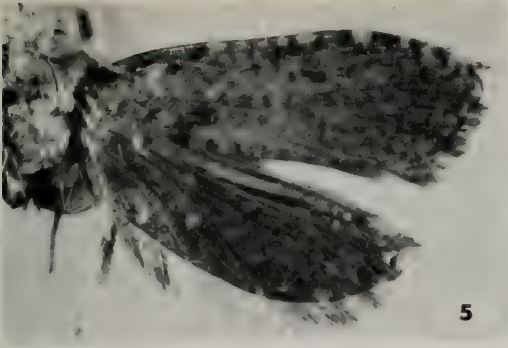
PLATE 2

Fig. 5. *Tinissa krakatoa* sp. n., ♀ holotype, Rakata I. [image reversed].
Fig. 6. *T. cinerascens* Meyrick, ♂ paralectotype, Sudest I.
Fig. 7. *T. cinerascens* Meyrick, ♀ lectotype, Rossel I.
Fig. 8. *T. distracta* Meyrick, ♂ paralectotype, Assam.
Fig. 9. *T. distracta* Meyrick, ♀ lectotype, Assam.
Fig. 10. *T. errantia* sp. n., ♂ holotype, Philippines.
Fig. 11. *T. amboinensis* sp. n., ♀ holotype, Ambon I.
Fig. 12. *T. amboinensis* sp. n., ♂ paratype, Ambon I.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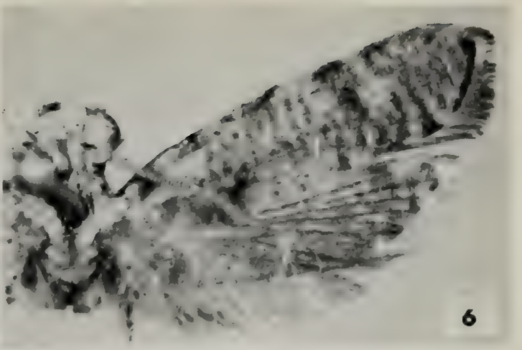
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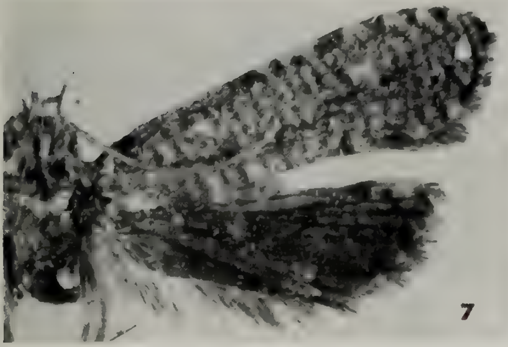
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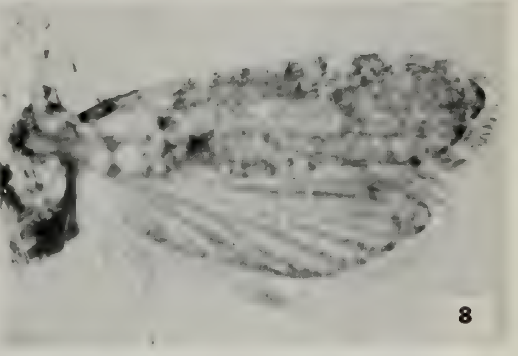
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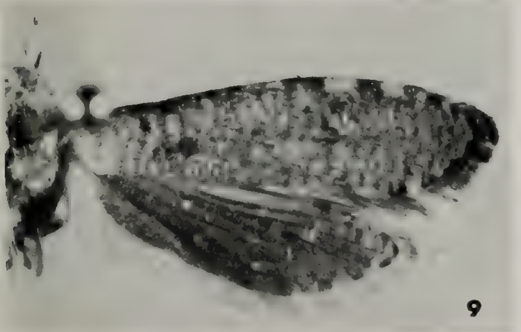
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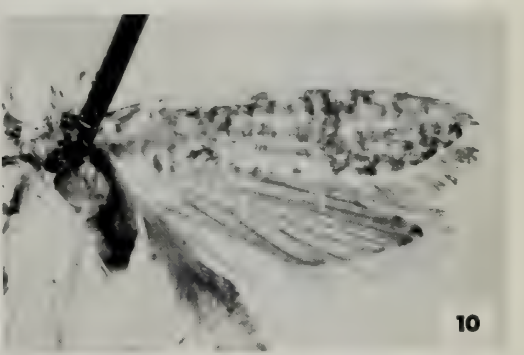
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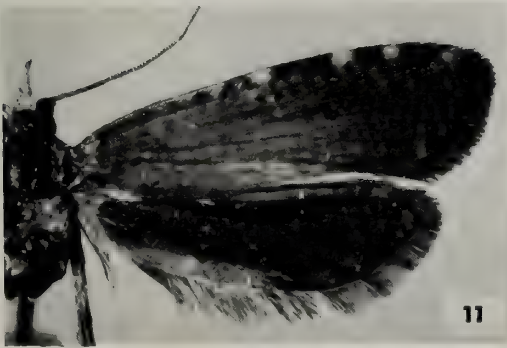
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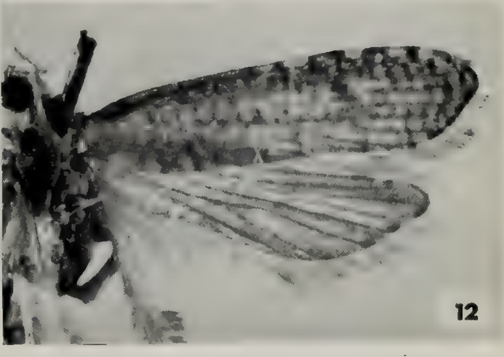
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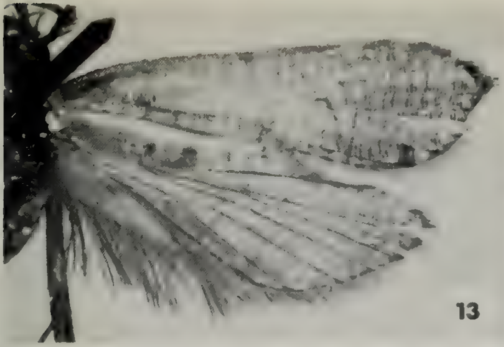
PLATE 3

Fig. 13. *Tinissa chaotica* sp. n., ♂ holotype, Ambon I.
Fig. 14. *T. convoluta* sp. n., ♀ holotype, Bougainville.
Fig. 15. *T. palmodes* Meyrick, ♀ holotype, New Guinea.
Fig. 16. *T. chalcites* sp. n., ♀ holotype, New Guinea.
Fig. 17. *T. albipuncta* sp. n., ♀ holotype, New Guinea.
Fig. 18. *T. eumetrota* Meyrick, ♀ lectotype, New Ireland.
Fig. 19. *T. polysema* Zagulajev, ♀ holotype, Java.
Fig. 20. *T. philippinensis* sp. n., ♀ holotype, Philippines.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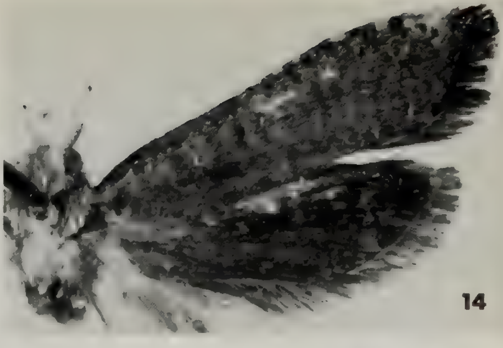
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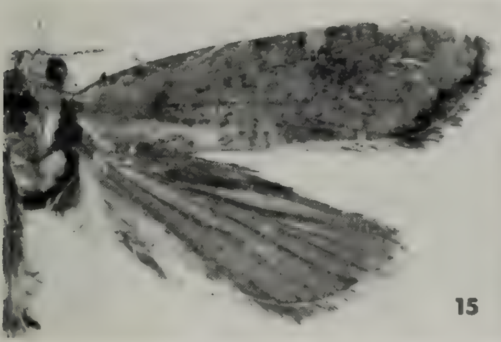
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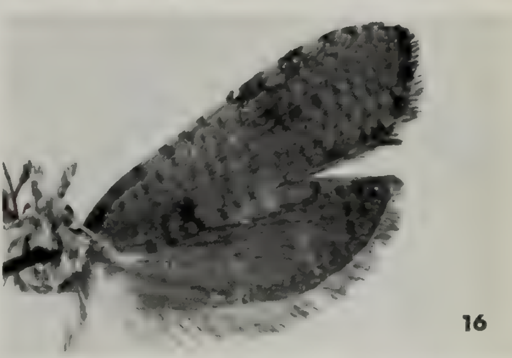
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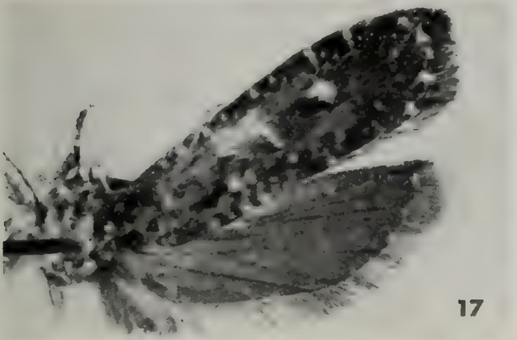
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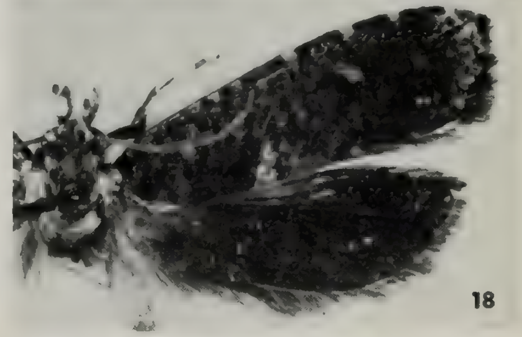
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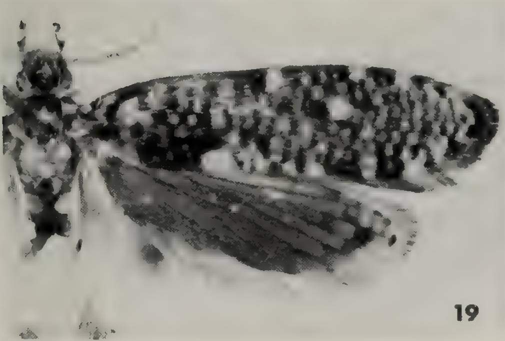
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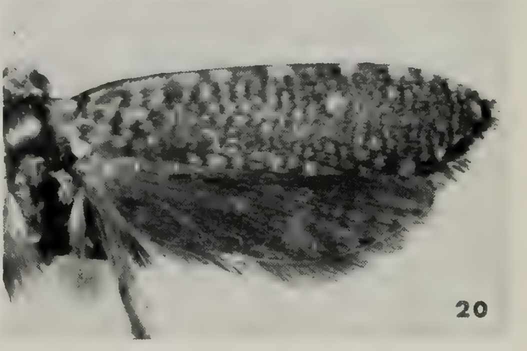
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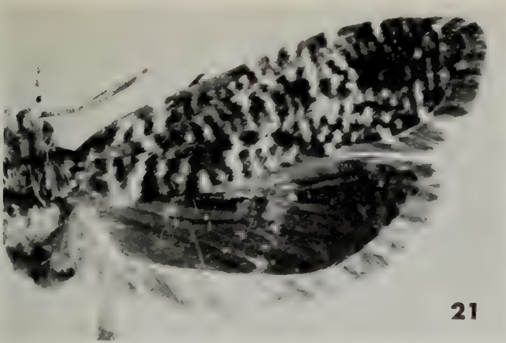
PLATE 4

Fig. 21. *Tinissa rigida* Meyrick, ♀ [lectotype of *heterograpta*], New Britain.
Fig. 22. *T. rigida* Meyrick, ♂ holotype, Kai Is.
Fig. 23. *T. baliomicta* Meyrick, ♀ holotype, Philippines.
Fig. 24. *T. parallela* sp. n., ♂ paratype, Sumatra.
Fig. 25. *T. parallela* sp. n., ♀ holotype, Sumatra.
Fig. 26. *T. indica* sp. n., ♀ holotype, Sikkim.
Fig. 27. *T. transversella* (Walker), ♀, Sulawesi.
Fig. 28. *T. dohertyi* sp. n., ♀ holotype, Ambon I.



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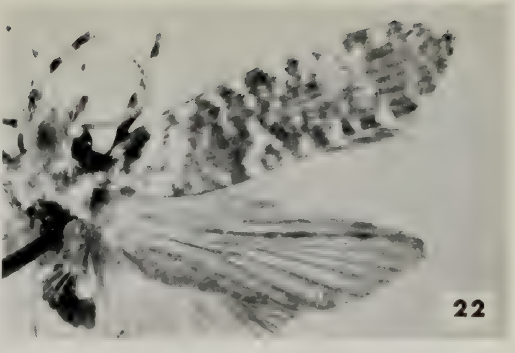

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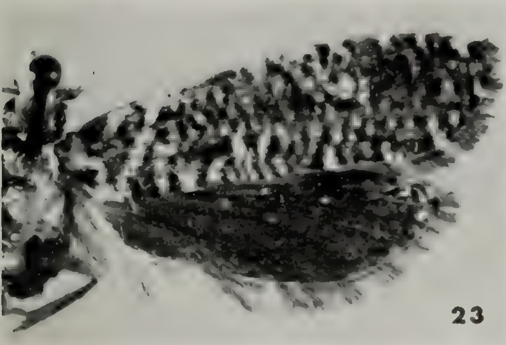

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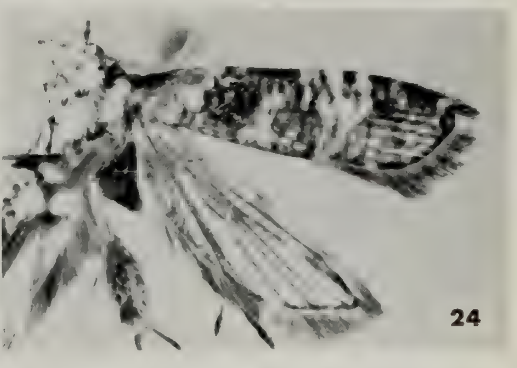

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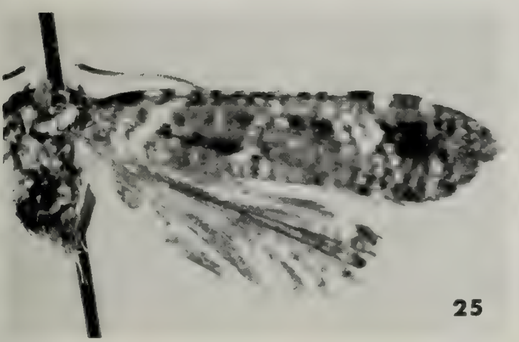

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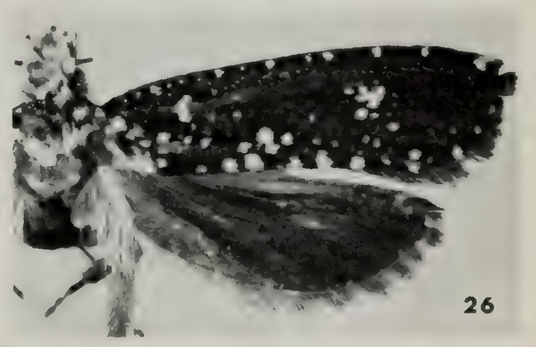

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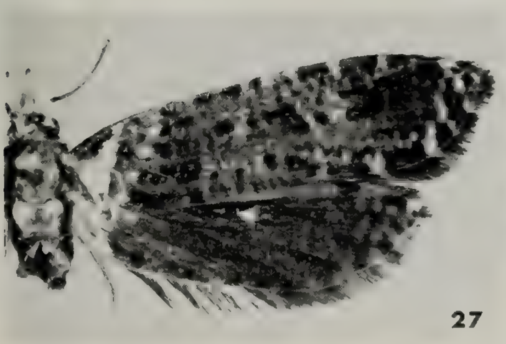

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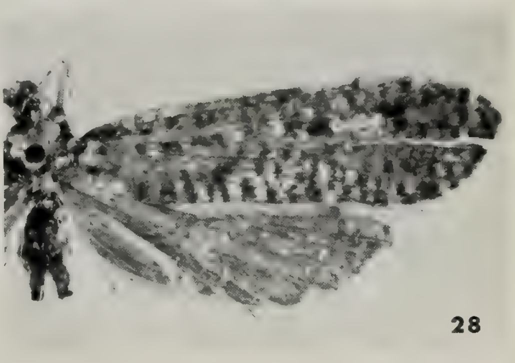

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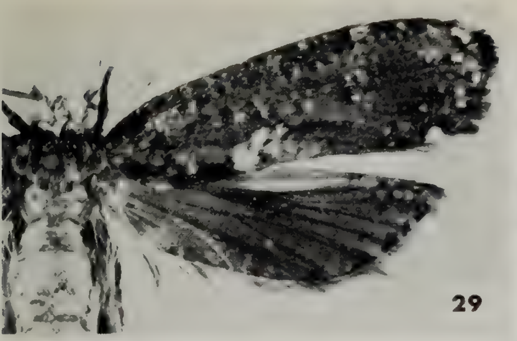
PLATE 5

Fig. 29. *Tinissa insularia* sp. n., ♀ paratype, Java.
Fig. 30. *T. insularia* sp. n., ♂ paratype, Penang.
Fig. 31. *T. goliath* sp. n., ♀ holotype, New Guinea.
Fig. 32. *T. kidukaroka* sp. n., ♀ holotype, Borneo.
Fig. 33. *T. insignis* Zagulajev, ♀ holotype, Java.
Fig. 34. *T. phrictodes* Meyrick, ♂ paralectotype, Solomon Is.
Fig. 35. *T. phrictodes* Meyrick, ♀ lectotype, Solomon Is.
Fig. 36. *T. poliophasma* Bradley, ♀ holotype, Uganda.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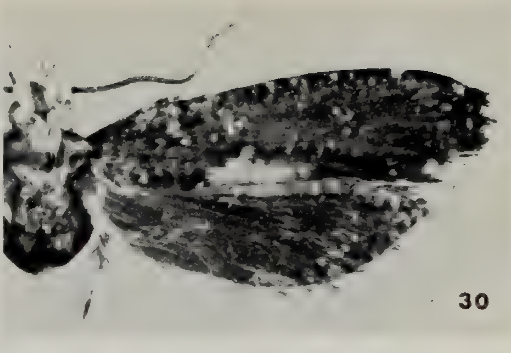
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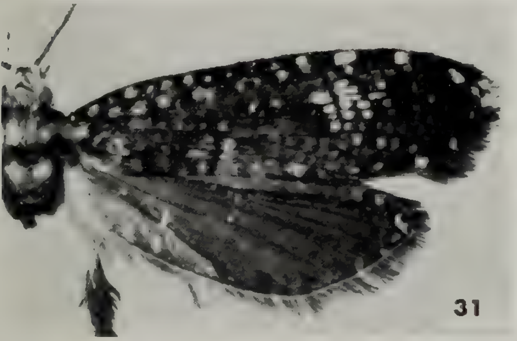
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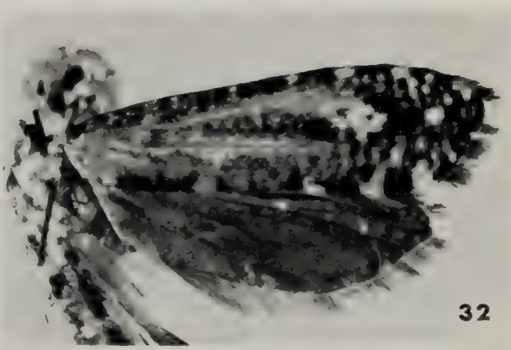
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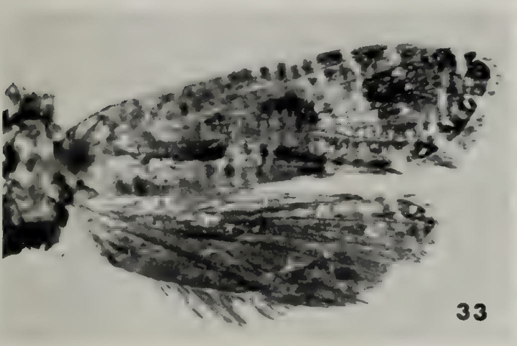
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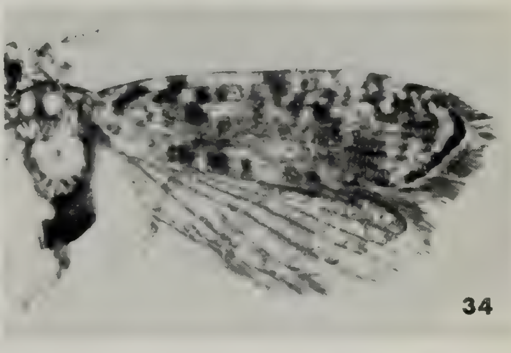
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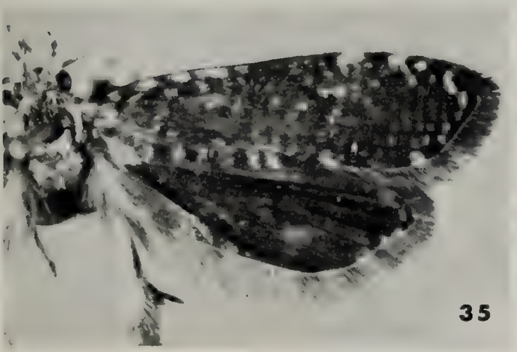
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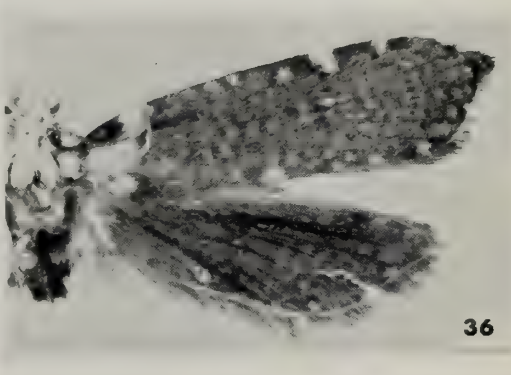
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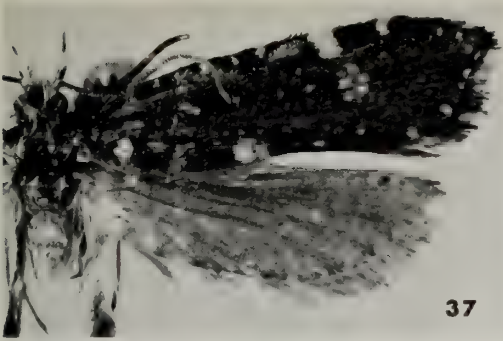
PLATE 6

FIG. 37. *Tinissa spaniastra* Meyrick, ♀ holotype, Ethiopia [reversed image].
FIG. 38. *T. ruwenzorica* Gozmány, ♂ holotype, Uganda.
FIG. 39. *T. torvella torvella* Walker, ♀, Sri Lanka [reversed image].
FIG. 40. *T. polystacta* (Meyrick), ♀ paralectotype, South Africa.
FIG. 41. *T. cultellata* (Gozmány & Vári), ♂ holotype, Uganda.
FIG. 42. *T. cultellata* (Gozmány & Vári), ♂, Uganda.
FIG. 43. *Leptozancla talaroscia* Meyrick, ♂ paralectotype, Kenya.
FIG. 44. *L. zelotica* (Meyrick), ♂ holotype, Ethiopia.



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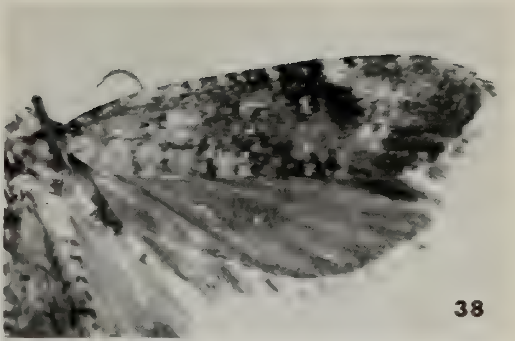

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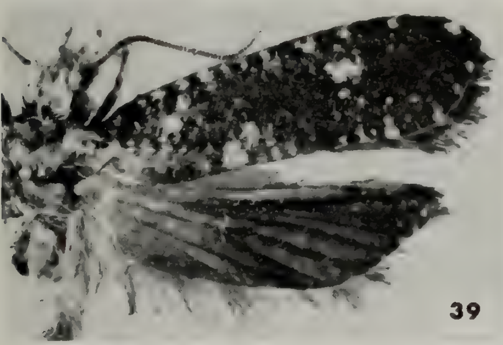

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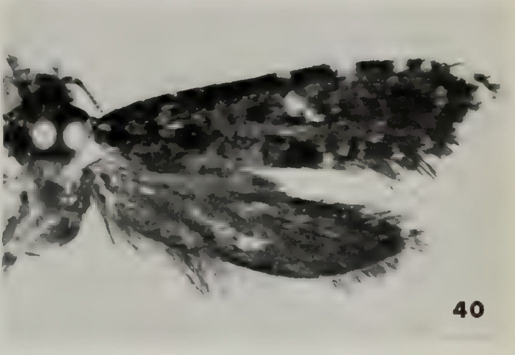

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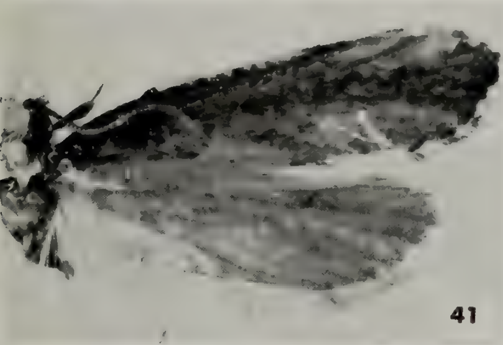

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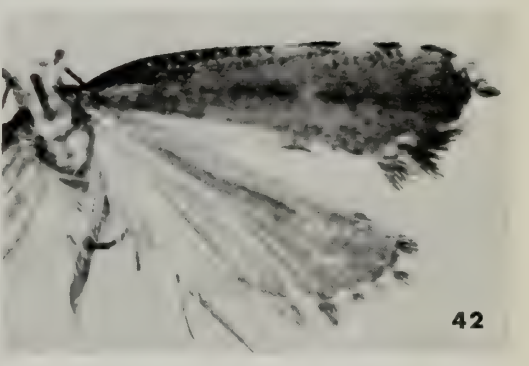

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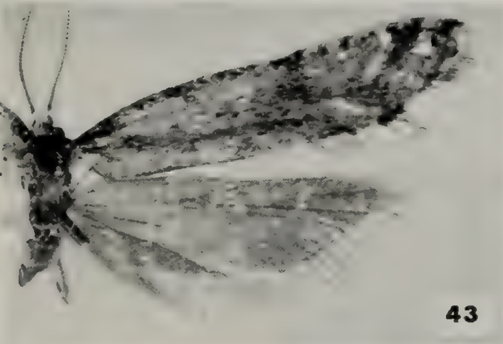

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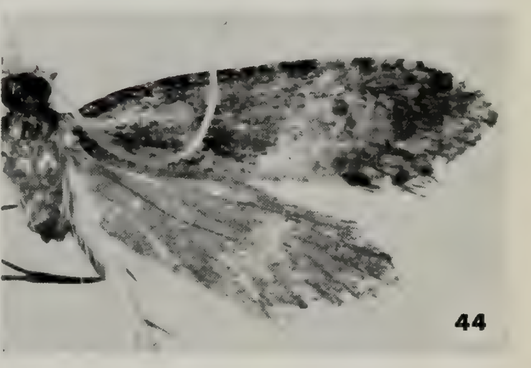

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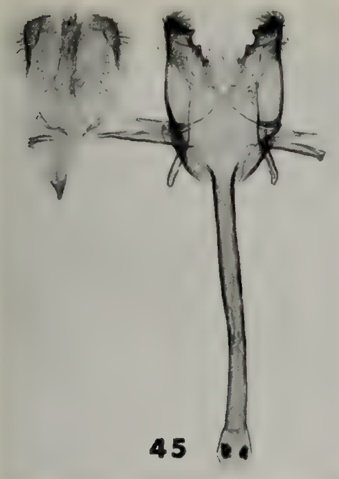
PLATE 7

Male genitalia

Fig. 45. *Tinissa distracta* Meyrick, paralectotype, Assam.
Fig. 46. *T. cinerascens* Meyrick, New Guinea.
Fig. 47. *T. cinerascens* Meyrick, New Guinea (coremata).
Fig. 48. *T. amboinensis* sp. n., paratype, Ambon I.
Fig. 49. *T. errantia* sp. n., holotype, Philippines.



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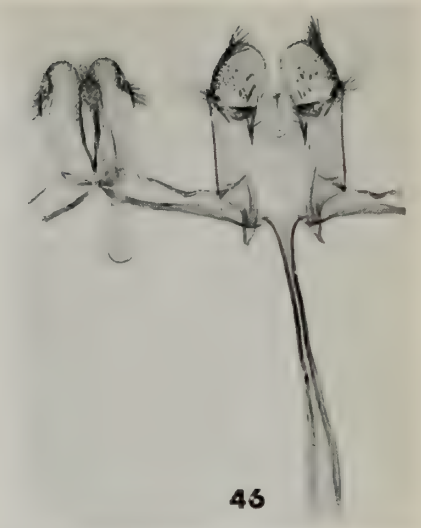

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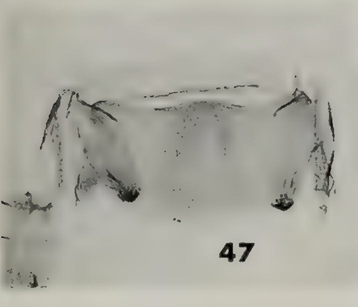

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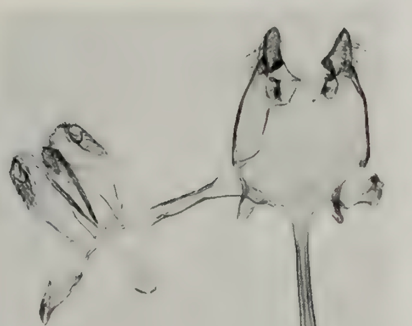

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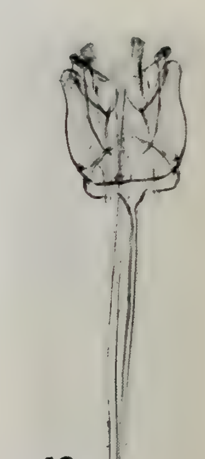

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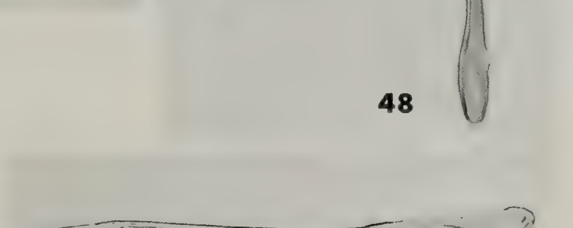
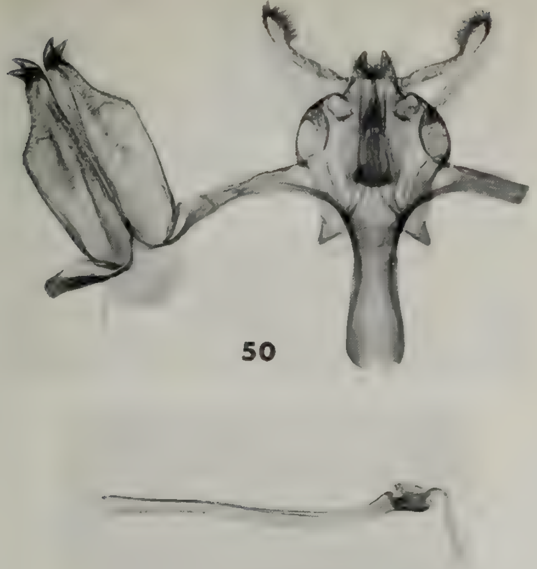


PLATE 8

Male genitalia

FIG. 50. *Tinissa chaotica* sp. n., holotype, Ambon I.
FIG. 51. *T. chalcites* sp. n., paratype, New Guinea.
FIG. 52. *T. albipuncta* sp. n., paratype, New Guinea.
FIG. 53. *T. rigida* Meyrick, holotype, Kai Is.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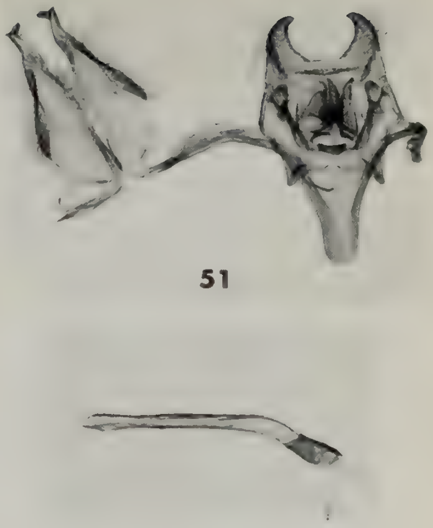
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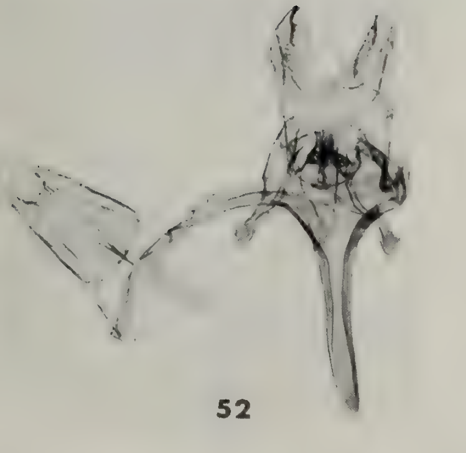
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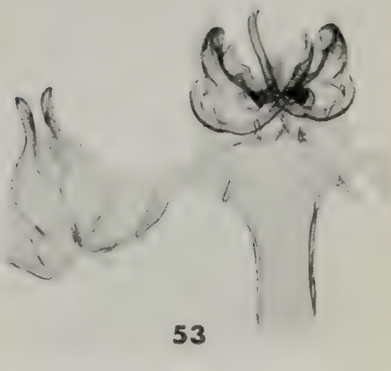
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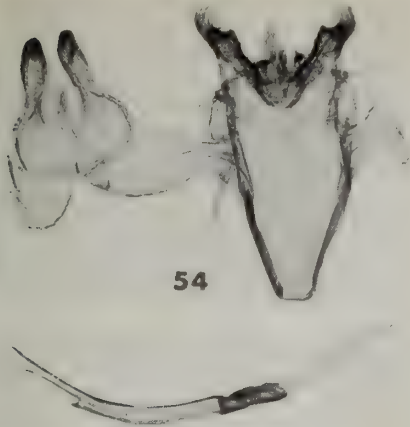
PLATE 9

Male genitalia

FIG. 54. *Tinissa parallela* sp. n., paratype, Sumatra.
FIG. 55. *T. indica* sp. n., paratype, Assam.
FIG. 56. *T. bakeri* sp. n., holotype, Philippines.
FIG. 57. *T. insularia* sp. n., paratype, Penang.
FIG. 58. *T. phrictodes* Meyrick, Solomon Is.
FIG. 59. *T. spaniastra* Meyrick, holotype, Ethiopia.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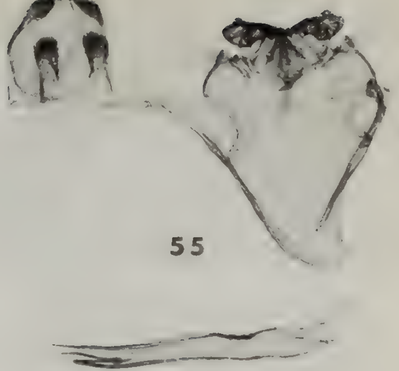
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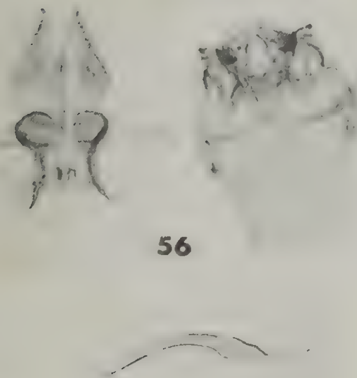
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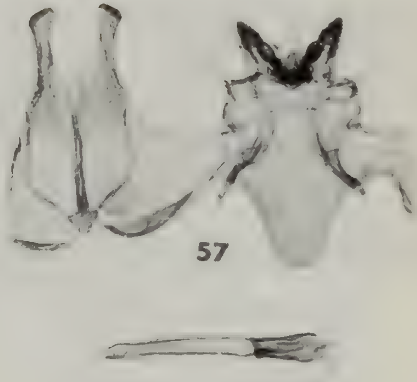
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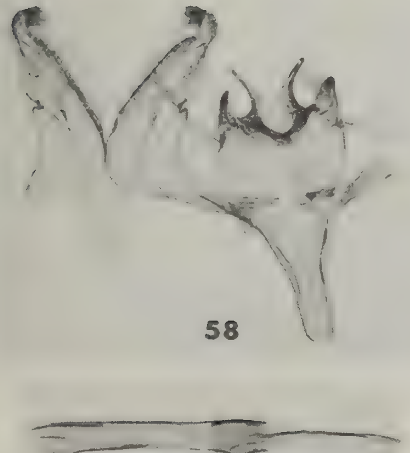
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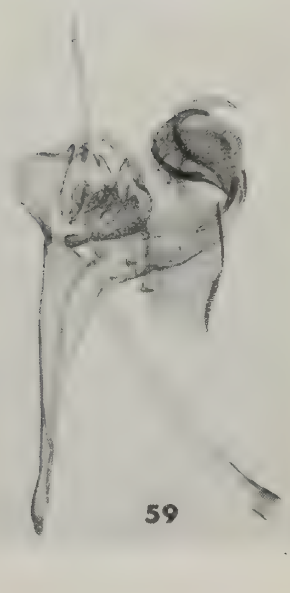
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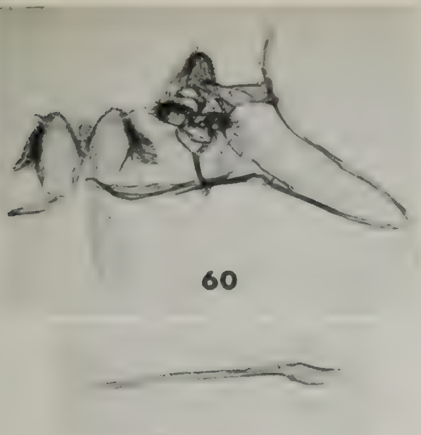
PLATE 10

Male genitalia

Fig. 60. *Tinissa ruwenzorica* Gozmány, holotype, Uganda.
Fig. 61. *T. ruwenzorica* Gozmány, holotype (eighth sternite).
Fig. 62. *T. torvella torvella* Walker, Sri Lanka.
Fig. 63. *T. torvella torvella* Walker, Sri Lanka (eighth sternite).
Fig. 64. *T. cultellata* (Gozmány & Vári), holotype, Uganda.
Fig. 65. *Leptozancla talaroscia* Meyrick, paralectotype, Kenya.



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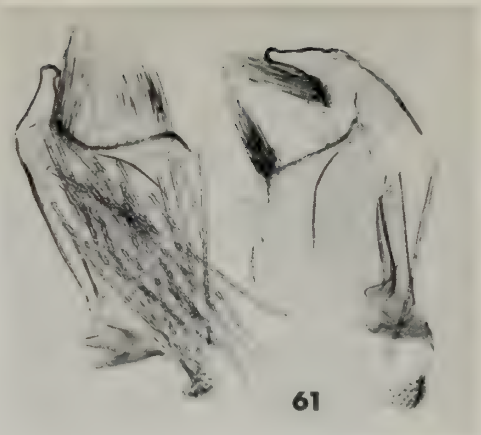

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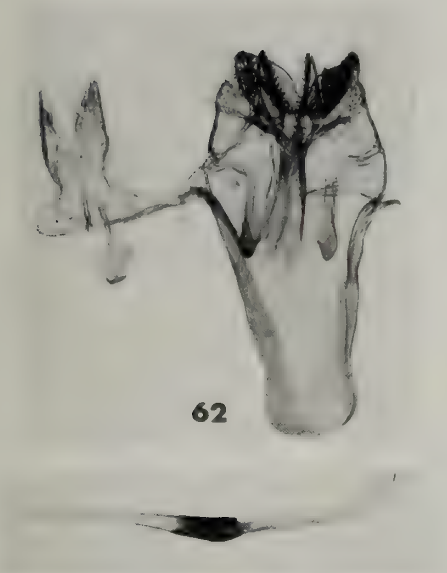

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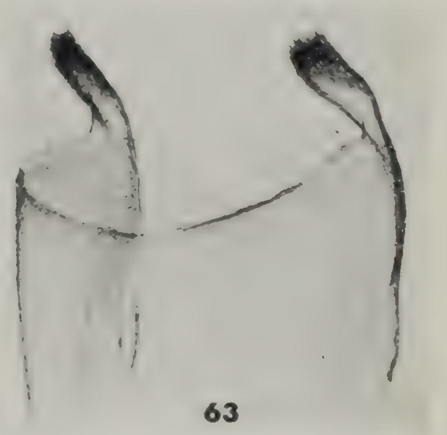

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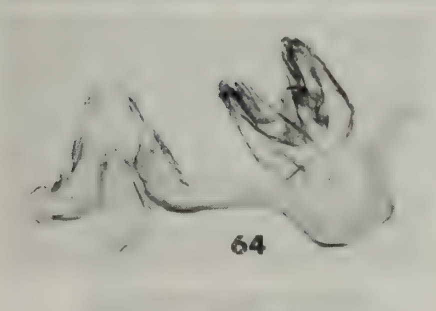

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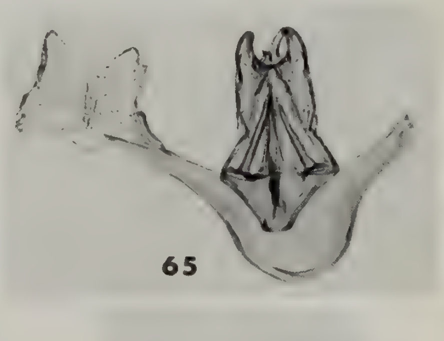

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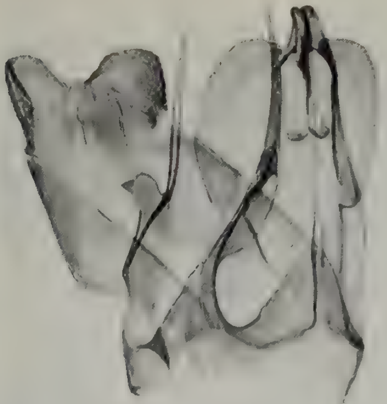
PLATE 11

Male genitalia

FIG. 66. *Leptozancla zelotica* (Meyrick), holotype, Ethiopia.

Female genitalia

FIG. 67. *Tinissa krakatoa* sp. n., holotype, Rakata I.
FIG. 68. *T. cinerascens* Meyrick, New Guinea.
FIG. 69. *T. distracta* Meyrick, lectotype, Assam.
FIG. 70. *T. amboinensis* sp. n., holotype, Ambon I.



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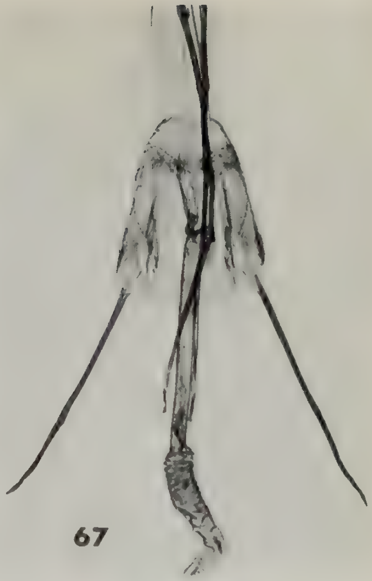

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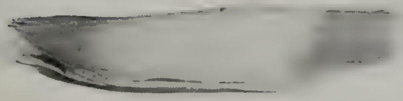

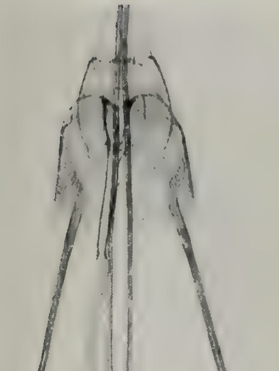

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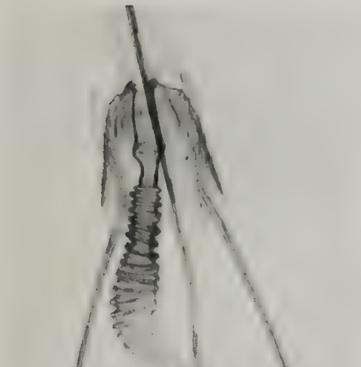

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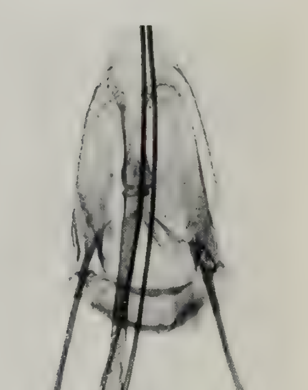

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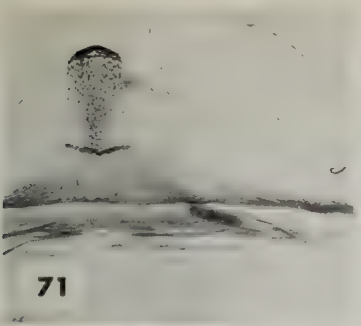
PLATE 12

Female genitalia

FIG. 71. *Tinissa amboinensis* sp. n., holotype (eighth tergite lobe).
FIG. 72. *T. araucariae* sp. n., holotype, New Guinea (eighth tergite lobe).
FIG. 73. *T. chalcites* sp. n., holotype, New Guinea (eighth tergite lobe).
FIG. 74. *T. convoluta* sp. n., holotype, Bougainville.
FIG. 75. *T. eumetrota* Meyrick, lectotype, New Ireland.
FIG. 76. *T. araucariae* sp. n., holotype, New Guinea.
FIG. 77. *T. chalcites* sp. n., holotype, New Guinea.
FIG. 78. *T. albipuncta* sp. n., holotype, New Guinea.
FIG. 79. *T. palmodes* Meyrick, holotype, New Guinea.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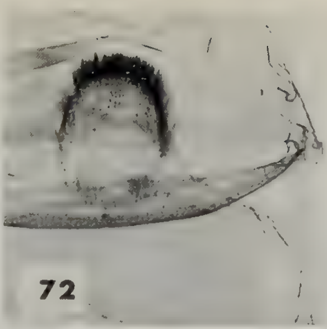
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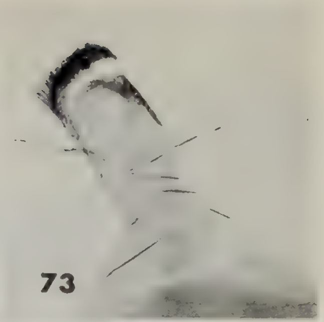
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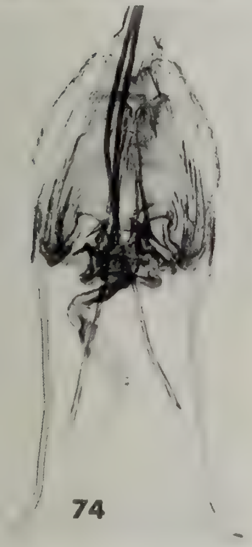
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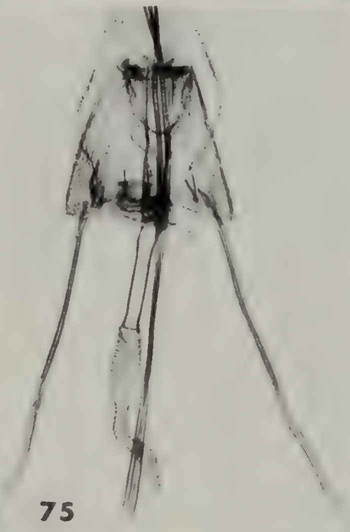
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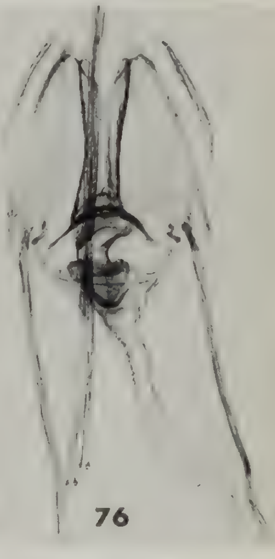
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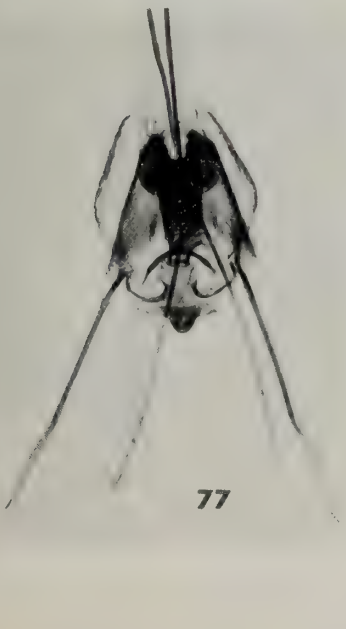
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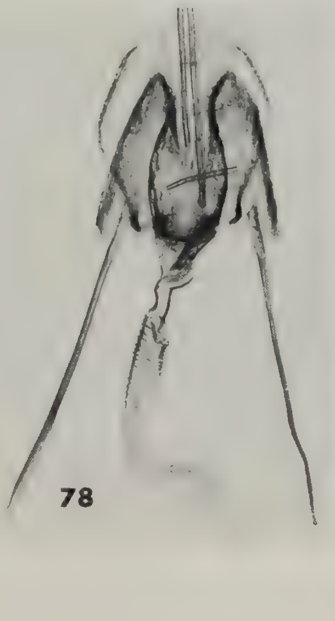
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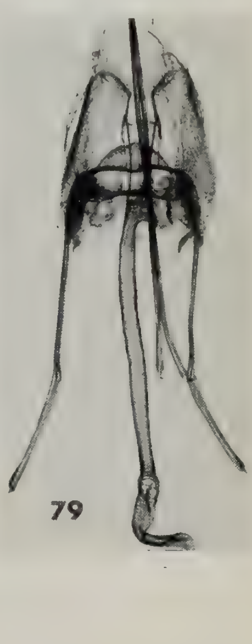
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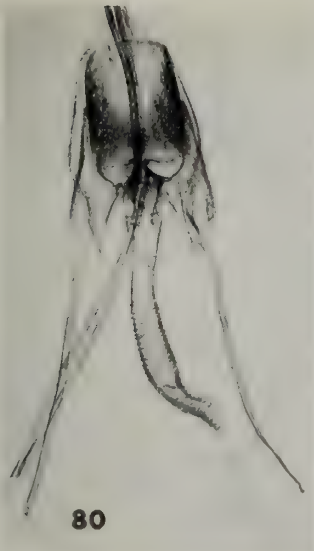
PLATE 13

Female genitalia

Fig. 80. *Tinissa polysema* Zagulajev, holotype, Java.
Fig. 81. *T. philippinensis* sp. n., holotype, Philippines.
Fig. 82. *T. baliomicta* Meyrick, New Guinea [see Text-fig. 6].
Fig. 83. *T. rigida* Meyrick [lectotype of *heterograpta*], New Britain [see Text-fig. 4].
Fig. 84. *T. baliomicta* Meyrick, Philippines [see Text-fig. 5].



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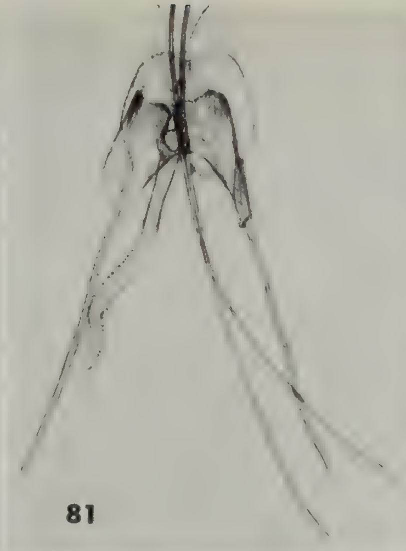

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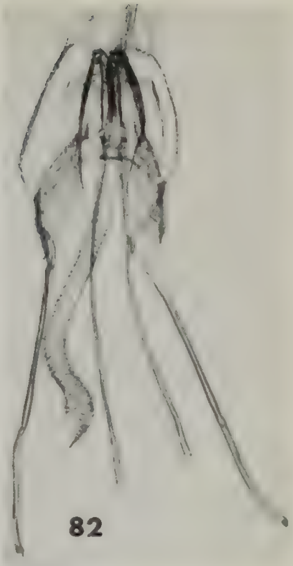

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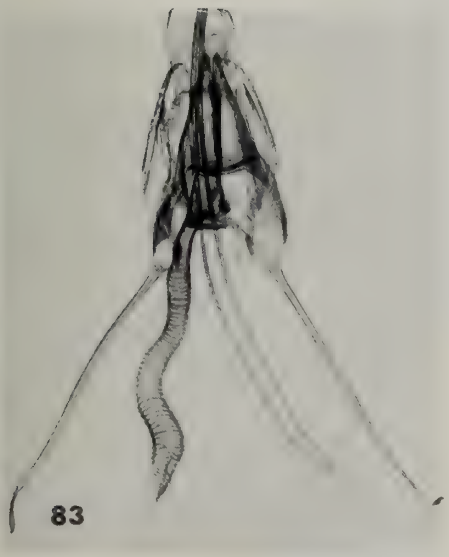

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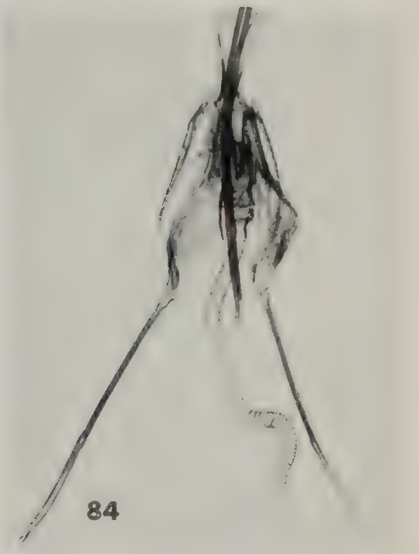

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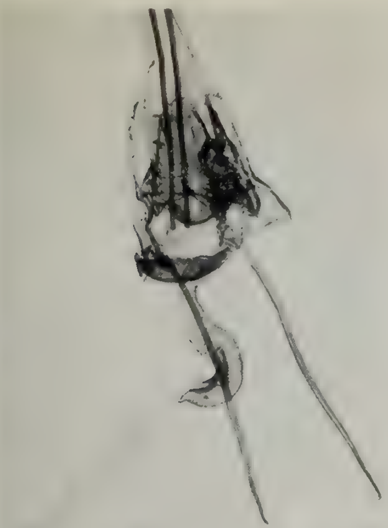
PLATE 14

Female genitalia

FIG. 85. *Tinissa parallela* sp. n., holotype, Sumatra [see Text-fig. 7].
FIG. 86. *T. indica* sp. n., paratype, Bhutan.
FIG. 87. *T. insularia* sp. n., paratype, Ambon I.
FIG. 88. *T. dohertyi* sp. n., holotype, Ambon I. [see Text-fig. 8].
FIG. 89. *T. transversella* (Walker), Sulawesi.



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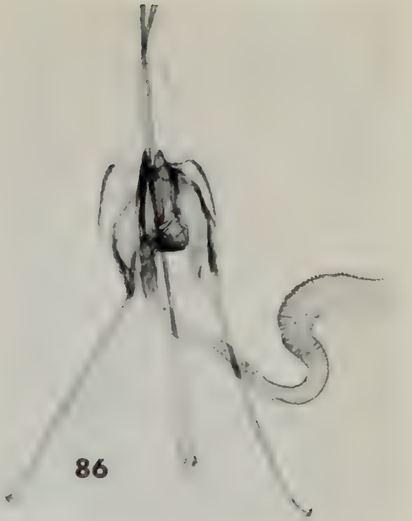

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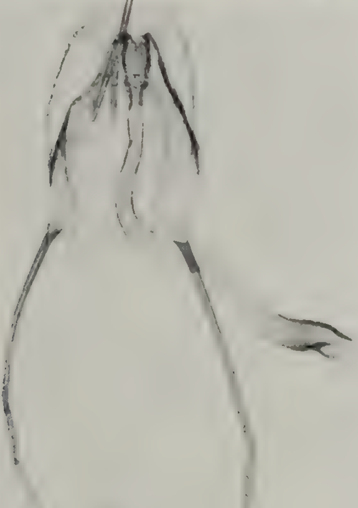

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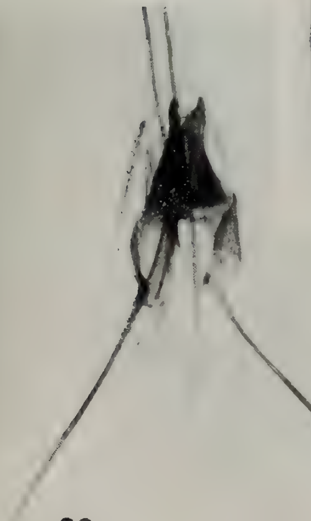

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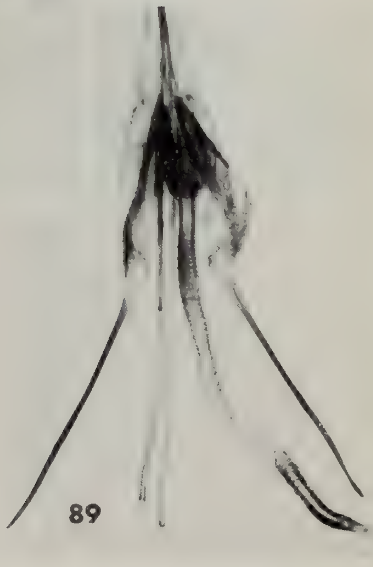

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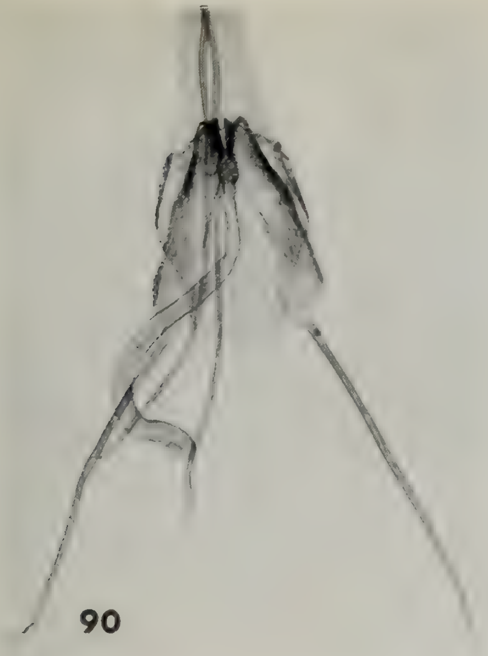
PLATE 15

Female genitalia

FIG. 90. *Tinissa goliath* sp. n., holotype, New Guinea.
FIG. 91. *T. kidukaroka* sp. n., holotype, Borneo [see Text-fig. 9].
FIG. 92. *T. insignis* Zagulajev, holotype, Java [see Text-fig. 10].
FIG. 93. *T. phrictodes* Meyrick, New Ireland.



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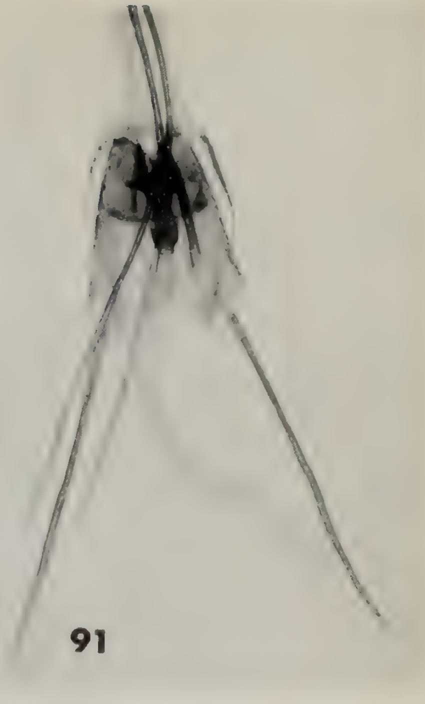

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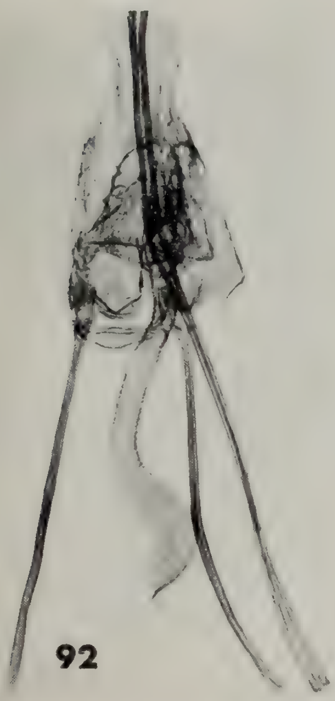

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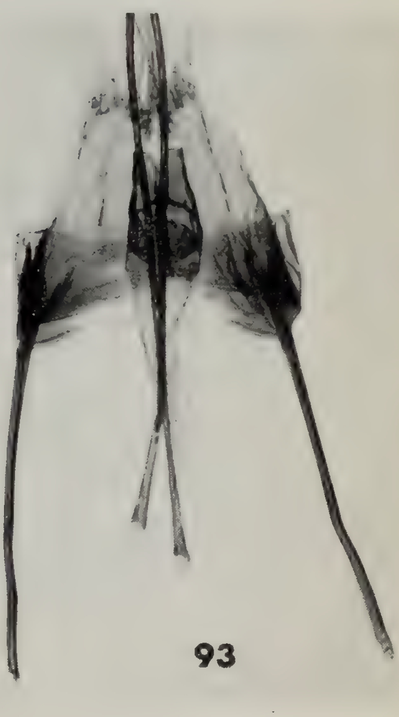

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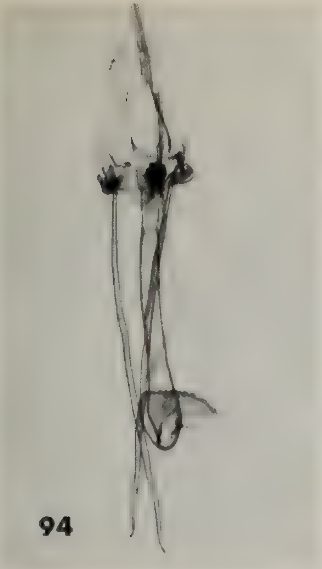
PLATE 16

Female genitalia

Fig. 94. *Tinissa spaniastra* Meyrick, Ethiopia.
Fig. 95. *T. torvella torvella* Walker, Sri Lanka.
Fig. 96. *T. torvella mysorensis* subsp. n., holotype, India.
Fig. 97. *T. polystacta* (Meyrick), paralectotype, South Africa.
Fig. 98. *T. poliophasma* Bradley, holotype, Uganda.



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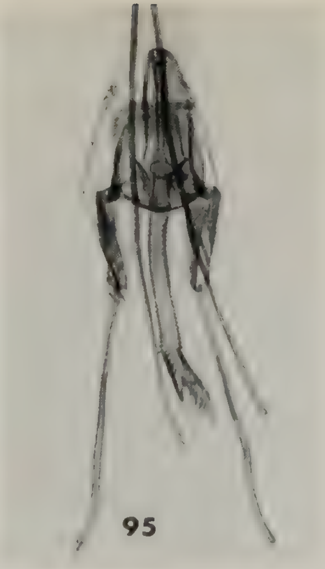

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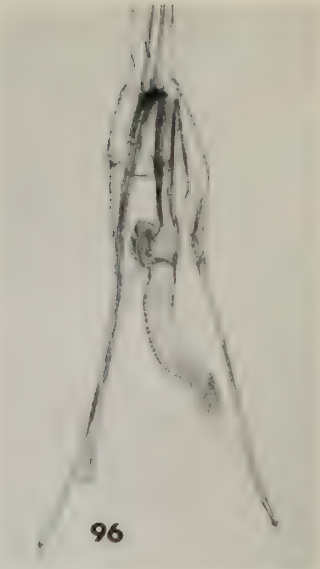

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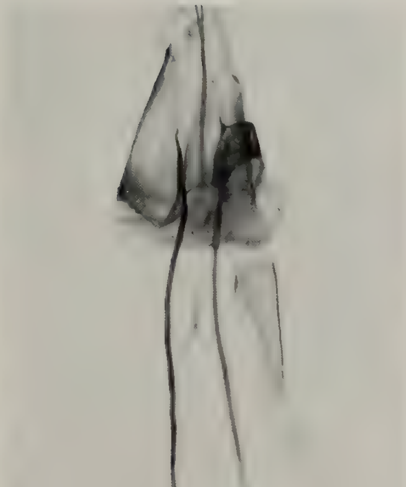

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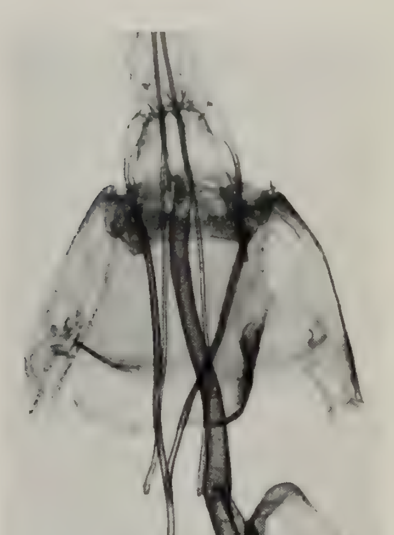

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Pp. 301–373

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ENTOMOLOGY Vol. 32 No. 8
LONDON : 1976

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THE WESTERN PALAEARCTIC ICHNEUMONIDAE (HYMENOPTERA) OF BRITISH AUTHORS

By M. G. FITTON

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SYNOPSIS

The 529 species-group names proposed by British authors for western Palaearctic Ichneumonidae (Hymenoptera) are catalogued. The generic placements of the species to which the names apply are established after study of the extant types. Types of 75 species are lost and 35 names remain *nomina dubia*. Lectotypes are designated for 144 nominal species-group taxa. Seventy-one new combinations and 13 new specific synonyms are established.

INTRODUCTION

This paper is intended as a contribution to a complete catalogue and reclassification of the western Palaearctic Ichneumonidae. Catalogues of this kind are essential if revisionary work is to have a sound nomenclatural basis. The main aims of the present work have been to list *all* of the relevant names proposed by British authors, locate type-material and establish the generic placements of the species after study of the types.

The need to catalogue the western Palaearctic Ichneumonidae is all the more apparent now that the catalogues produced by H. and M. Townes and co-workers cover the rest of the world. The volume and complexity of the literature dealing with the western Palaearctic fauna make a complete bibliographic treatment of a similar kind virtually impossible. However, the basic data (on names, types and generic placements) that are essential prerequisites to revisionary studies can be collected and presented in a readily usable form fairly quickly. Catalogues of this kind treating the names of one or a group of authors are more easily checked for completeness than those covering groups defined taxonomically because of the very large number of ichneumonid names that have never been properly accounted for. Another advantage of this approach is that the names and type-material of any one author tend to be in a restricted number of publications and collections respectively.

The western Palaearctic Ichneumonidae were last catalogued completely by Dalla Torre (1901; 1902). Morley made an attempt to account for all of the British species of British authors in his *Ichneumonologia Britannica* (1903–1915) but his work is unreliable and is now largely ignored. More recently Perkins (1953) has studied the British Ichneumoninae and Horstmann (1972) has catalogued a large proportion of the species described by Bridgman. Oehlke (1967) and Aubert (1969*a*) have produced catalogues of the western Palaearctic Pimplinae (Aubert's catalogue also includes the Xoridinae and Acaenitinae).

In this paper an attempt has been made to account for all of the species-group names proposed by British (including Irish) authors for western Palaearctic Ichneumonidae up to July 1975. *Nomina nuda* have been omitted. For convenience the limits of the western Palaearctic have been taken as the western boundary of the eastern Palaearctic as defined by Townes, Momoi & Townes (1965) and the northern boundary of the Ethiopian region as defined by Townes & Townes (1973). A small number of species described from the western Palaearctic in error are included in the catalogue.

A large proportion of the species dealt with in this catalogue were described before the practice of designating a single specimen as 'holotype' or 'type' was adopted. Indeed in many of the original descriptions there is little or no reference to the type-material. When only a single type-specimen has been found, and there is no evidence that more than one original specimen existed, that specimen has been accepted and is cited as the 'holotype'. The treatment of single extant types, from type-series of unknown size, as holotypes is discussed by Crosskey (1974 : 272–275) and is the practice followed in the Townes catalogues (e.g. Townes & Townes, 1973 : 4). The more positive approach of designating such specimens as lectotypes, advocated by Vane-Wright (1975 : 26–28), has not been adopted.

There are previous valid type restrictions for a number of the species originally described from syntype series and in addition a large number of lectotypes are designated in this paper. It has been thought desirable to designate lectotypes because of the past treatment of type-material, particularly in the BMNH collection. It was Morley's practice to select and label one specimen from a syntype series as 'type'. There is evidence in some of Morley's statements that some 'types' had been labelled by earlier curators of the BMNH collection and others have been labelled subsequently by J. F. Perkins. Unfortunately most of these type selections have never been published and in a large number of cases it is not now possible (because of inadequate labelling) to identify other members of the original syntype series. Morley was very inconsistent when dealing with types in his published work although he clearly had a 'type' concept. These 'types' have been regarded in the same way as holotypes and in the BMNH were serially numbered and segregated in a 'Type collection' together with genuine holotypes and properly designated lectotypes. In cases of this kind the lectotypes designated here are the specimens that have been traditionally regarded as 'types' unless otherwise stated.

The generic placements given in this paper mostly follow the work of Townes (1969; 1970*a*; 1970*b*; 1971). My inexperience means that some species will have been misplaced and this is likely to be the main shortcoming of the catalogue. J. F. Perkins' work with the BMNH collection has been invaluable as a guide to the placement of a large proportion of the species. In the cases where types have been lost or destroyed and there has been no recent reliable consideration of placement the names are given as *nomina dubia*. Little attention has been paid to specific synonymy since the extra work involved would in any case need to be repeated during revisionary studies. Previously published synonyms are given where they are probably correct and some new synonyms are established where there can be little doubt about the identity of the species concerned. Limited bibliographic references are cited to papers dealing with the placements and synonymies given. Usually the reference is to the most recent authoritative work, not necessarily to where the placement or synonymy was established.

FORMAT OF CATALOGUE ENTRIES

For each name the entry is arranged in the following sequence.

> Name; author; date and page reference of original publication; status and sex of primary type(s); locality of primary type(s); type-depository; lectotype designation or reference to previous valid type restriction (when necessary).

Number and sex of paralectotypes, with data as for lectotype (when necessary).

Statements on the labelling of the type-material especially with regard to its identification as such and on its condition if badly damaged.

A statement, prefixed '*Identity*', on the generic placement and synonymy of the species.

The following points should be noted with regard to these data.

The name is given as published except that the orthography is altered as necessary to comply with Articles 26, 27, 28 and 32 of the *International Code of Zoological Nomenclature* (1961).

The date given is the actual date of publication. If a different date is given in the original publication this is shown in the list of references and any relevant information is given in the notes on individual authors. Dates of publication of parts of the *Trans. ent. Soc. Lond.* are given by Wheeler (1912).

In the cases of types lost or destroyed their status and sex is given on the basis of data available in the original description.

Type-locality information not taken from the original description and/or specimen labels is enclosed in square brackets. English and Welsh county names in square brackets are the new counties operative from April, 1974. The names of the new Scottish regions have not been used because of their more recent introduction (May, 1975) and the very large areas which they cover.

Where types have not been located 'lost' or 'destroyed' (on the evidence available) is given in place of a type-depository. The abbreviations used to indicate type-depositories are given in the following section.

Previous valid type restrictions. If the word lectotype was used in the restriction it is cited as 'by designation of . . .' or as 'by fixation of . . .' if the word lectotype was not used.

The information on paralectotypes is omitted if it was given clearly and completely with a previous lectotype designation. The phrase 'same data as lectotype' refers *only* to the locality data as given for the lectotype.

DEPOSITORIES OF MATERIAL

An annotated list of depositories, together with the abbreviations used to indicate them, is given below. Further notes on the collections of individual authors are given in the catalogue.

BMNH	British Museum (Natural History), London Contains the collections of Cameron, Capron, Desvignes, Fitch (part), Marshall, Morley, Stephens and Wollaston and some or all types of Bignell, Bridgman, Bridgman & Fitch, Cameron, Capron, Curtis, Desvignes, Kerrich, Laidlaw, Marshall, Morley, Perkins, Stelfox, Stephens Waterston and Wollaston. All material is incorporated into a single collection of world Ichneumonidae. Morley (1910 : 167–168 and 170) apparently amalgamated the main British collections and it was probably he who was responsible for labelling a large number of specimens as 'types'. Many of these specimens came from syntype series which

	cannot now be reconstructed as the original placements of specimens in the individual collections are not indicated (except for a proportion of the 'types' and a small number of specimens labelled as 'co-types').
CM, Norwich	Castle Museum, Norwich Contains the collection of Bridgman which includes most of Bridgman's types and types of Bridgman & Fitch and Parfitt.
CMAG, Plymouth	City Museum and Art Gallery, Plymouth Contains the collection of Bignell. The primary types, of Bignell, Bridgman and Marshall, from this collection are now on permanent loan at the BMNH.
IRSNB, Brussels	Institut Royal des Sciences Naturelles de Belgique, Brussels
MHN, Geneva	Muséum d'Histoire Naturelle, Geneva
MNHN, Paris	Muséum National d'Histoire Naturelle, Paris
MNHU, Berlin	Museum für Naturkunde der Humboldt-Universität, Berlin
NMI, Dublin	National Museum of Ireland, Dublin Contains the collection of Haliday which includes the Haliday types and some Curtis types.
NMV, Melbourne	National Museum of Victoria, Melbourne Contains the Curtis collection which includes most of the Curtis types and one Desvignes type.
NR, Stockholm	Naturhistoriska Riksmuseet, Stockholm
PEM, London	Passmore Edwards Museum, London Contains part of the Fitch collection.
UM, Oxford	University Museum, Oxford
USNM, Washington	United States National Museum, Washington Contains the Stelfox collection which includes all except one of Stelfox's types.
UZI, Lund	Universitetets Zoologiska Institution, Lund
ZI, Wrocław	Zoological Institute, Wrocław
ZIU, Uppsala	Zoological Institute of the University, Uppsala
ZMU, Helsinki	Zoological Museum of the University, Helsinki
ZSBS, Munich	Zoologische Sammlung des Bayerischen Staates, Munich

CATALOGUE OF WESTERN PALAEARCTIC ICHNEUMONIDAE OF BRITISH AUTHORS

The catalogue is arranged in alphabetical order of authors and original binominal combinations.

BIGNELL, G. C.

Bignell's collection is in the City Museum and Art Gallery, Plymouth. The specimens are usually labelled with a printed number, the complete data being in a manuscript notebook kept with the collection. The ichneumonid primary types from the collection have been placed on permanent loan at the British Museum (Natural History). Hodgson (1917) published an account of type-material in the Bignell collection. From a study of the collection (where a number of specimens are incorrectly labelled 'type') and the paper it is clear that Hodgson did not intend to make type restrictions and his mentions of 'type' are not construed as such.

Pimpla bridgmanii Bignell, 1894*a* : 280. Holotype ♀, [ENGLAND:] Devon, Cann Woods (BMNH, on permanent loan from CMAG, Plymouth) [examined].

The holotype lacks the tips of the antennae.

Bignell (1894*b* : 255) published a second description of this species under the name *bridgmani*.

Identity. Junior synonym of *Dreisbachia pictifrons* (Thomson) (Oehlke, 1967 : 20).

Pimpla epeirae Bignell, 1893 : 37. LECTOTYPE ♀, [ENGLAND:] Devon, Ivybridge (BMNH), here designated [examined].

Paralectotypes. 2 ♀, same data as lectotype (CMAG, Plymouth).

Identity. Junior synonym of *Tromatobia variabilis* (Holmgren) (Oehlke, 1967 : 18).

Pimpla rufipleura Bignell, 1889 : xv. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH, on permanent loan from CMAG, Plymouth), here designated [examined].

Paralectotypes. 2 ♂ (BMNH, on permanent loan from CMAG, Plymouth); 1 ♂ (CMAG, Plymouth). All same data as lectotype.

The lectotype is on the same mount as two of the paralectotypes.

Identity. *Tromatobia rufipleura* (Bignell) (Oehlke, 1967 : 18).

BRIDGMAN, J. B.

Bridgman's collection is in the Castle Museum, Norwich. The arrangement of specimens does not seem to have been altered significantly since Bridgman donated the collection to the museum in 1895. This, together with the published and unpublished work of J. F. Perkins and K. Horstmann, has greatly facilitated cataloguing of the type-material. Generally the only data with specimens are a handwritten number and/or a colour-coded label. The complete data are in a manuscript notebook kept with the collection. There is also a further volume of Bridgman's manuscript notes.

Anomalon cylindricum Bridgman, 1884 (November) : 424. LECTOTYPE ♀, [GREAT BRITAIN] (PEM, London), here designated [examined].

Paralectotype ♀, same data as lectotype (PEM, London).

The two syntypes were standing in the Fitch collection under the label '1419. insidiator, Fst.' cut from Morley's catalogue.

The lectotype and paralectotype are the same specimens as the lectotype and paralectotype, respectively, of *Anomalon cylindricum* Bridgman & Fitch.

Identity. Junior primary homonym and synonym of *Anomalon cylindricum* Bridgman & Fitch. Valid name *Barylypa cylindricum* (Bridgman & Fitch).

Anomalon minutum Bridgman, 1884 (November) : 425. LECTOTYPE ♀, [ENGLAND: Hampshire,] New Forest (CM, Norwich), here designated [examined].

Paralectotypes. 2 ♂, 5 ♀, same data as lectotype (CM, Norwich).

The lectotype and paralectotypes are the same specimens as the lectotype and paralectotypes, respectively, of *Anomalon minutum* Bridgman & Fitch. The specimen labelled as 'type' by Morley (1915*c* : 254–255) was (according to Bridgman's notes) collected in 1885 and therefore has no type status.

Identity. Junior primary homonym and synonym of *Anomalon minutum* Bridgman & Fitch. Valid name *Agrypon minutum* (Bridgman & Fitch) (det. I. D. Gauld).

Anomalon nigripes Bridgman, 1887 : 150. LECTOTYPE ♂, [ENGLAND:] Sussex, Abbotswood (CM, Norwich), here designated [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. *Agrypon nigripes* (Bridgman) (det. I. D. Gauld).

Apterophygus paradoxus Bridgman, 1889 : 417. Holotype ♀, [ENGLAND: Wiltshire,] Nunton (BMNH) [examined].

Identity. *Phygadeuon paradoxus* (Bridgman) (Horstmann, 1972 : 223).

Aptesis foersteri Bridgman, 1882 : 146. Holotype ♀, [ENGLAND:] Norfolk, Brundall (CM, Norwich) [examined].
Identity. Junior synonym of *Catalytus mangeri* (Gravenhorst) (Horstmann, 1972 : 219).

Bassus abdominator Bridgman, 1886 : 365. Holotype ♀, [ENGLAND:] near Plymouth (CM, Norwich) [examined].
Identity. Syrphoctonus abdominator (Bridgman) (Diller, 1969 : 550).

Bassus holmgreni Bridgman, 1882 : 161. LECTOTYPE ♀, [ENGLAND:] Norfolk, Brundall (CM, Norwich), here designated [examined].
Paralectotype ♂, [ENGLAND:] Norfolk, Felthorpe (CM, Norwich).
Identity. Junior synonym of *Tymmophorus rufiventris* (Gravenhorst) (Dasch, 1964 : 82).

Bassus punctatus Bridgman, 1888 : 375. Holotype ♀, [ENGLAND: Surrey,] Caterham [not Aviemore as stated by Bridgman] (CM, Norwich) [examined].
The specimen agrees in all respects with the original description except the locality, which is written (in ?Champion's handwriting) on the underside of the mount. There can be little doubt that this is Bridgman's original specimen.
Identity. Junior synonym of *Homotropus fissorius* (Gravenhorst) (Thomson, 1890 : 1504).

Bassus scutellaris Bridgman, 1886 : 364. Holotype ♀, [ENGLAND:] near Plymouth (CM, Norwich) [examined].
Identity. Junior primary homonym of *Bassus scutellaris* Cresson, 1868 : 112. Replacement name here proposed: *Promethes bridgmani* **nom. n.**

Bassus tibialis Bridgman, 1883 : 170. Syntype ♀, [GREAT BRITAIN] (CM, Norwich) [examined].
The only extant syntype is in poor condition, being covered by the remains of a growth of mould, and is not designated as lectotype for that reason. The specimen was standing, unlabelled, under *tibialis* in Bridgman's collection and is probably the one from Mr Norgate. The other two specimens were probably returned to Mr Fletcher and as yet have not been traced.
Identity. Junior primary homonym of *Bassus tibialis* Cresson. **Syn. n.** of *Bioblapsis polita* (Vollenhoven, 1878 : 161 (*Trichomastix*)), holotype [?] ♀, [NETHERLANDS:] Scheveningen (?depository) [not examined].

Campoplex costulatus Bridgman, 1886 : 346. Holotype ♂ [GREAT BRITAIN] (lost).
This specimen is presumably also the type of *Campoplex costulatus* Bridgman & Fitch.
Identity. Junior primary homonym and synonym of *Campoplex costulatus* Bridgman & Fitch. Valid name *Dusona anceps* (Holmgren) (Hinz, 1972 : 47).

Campoplex femorator Bridgman, 1886 : 347. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Hinz (1972 : 47) [examined].
Paralectotypes. 1 ♂ (CM, Norwich); 2 ♂, 2 ♀ (BMNH). All same data as lectotype.
The paralectotypes in the BMNH collection are 1 ♂, 2 ♀ from the Harwood collection labelled 'C. femorata named by Bridgman' and 1 ♂ from the Capron collection (originally pinned but remounted on card by Capron) given to him by Bridgman (Morley, 1915*c* : 77). All specimens except the one from the Capron collection are mounted on similar short brass pins.
The lectotype and paralectotypes are the same specimens as the lectotype and paralectotypes, respectively, of *Campoplex femorator* Bridgman & Fitch.
Identity. Junior primary homonym and synonym of *Campoplex femorator* Bridgman & Fitch. Valid name *Dusona polita* (Foerster) (Hinz, 1972 : 47).

Campoplex incompletus Bridgman, 1889 : 420. Holotype ♂, [ENGLAND:] Eastbourne (CM, Norwich) [examined].
Identity. Dusona incompleta (Bridgman) (Hinz, 1972 : 47).

Campoplex punctatus Bridgman, 1886 : 345. Holotype ♂, [GREAT BRITAIN] (CM, Norwich) [examined].
This specimen is also the holotype of *Campoplex punctatus* Bridgman & Fitch.

Identity. Junior primary homonym and synonym of *Campoplex punctatus* Bridgman & Fitch. Valid name *Dusona petiolator* (Fabricius) (Hinz, 1972 : 47).

Cecidonomus gallicola Bridgman, 1880*b* : 265. Lectotype ♀, [Great Britain] (CM, Norwich), by designation of Horstmann (1972 : 218) [examined].

Paralectotypes. 2 ♂, 3 ♀, same data as lectotype (BMNH).

Identity. *Mastrus gallicola* (Bridgman) (Horstmann, 1972 : 218).

Cecidonomus rufus Bridgman, 1880*b* : 265. Lectotype ♀, [England:] near Norwich, Eaton (CM, Norwich), by designation of Horstmann (1972 : 219) [examined].

Paralectotypes. 2 ♀ (BMNH); 1 ♀ (CM, Norwich).

Identity. Junior synonym of *Mastrus inimicus* (Gravenhorst) (Horstmann, 1972 : 219).

Cecidonomus westoni Bridgman, 1880*b* : 264. Lectotype ♀, [Great Britain] (CM, Norwich), by designation of Horstmann (1972 : 218) [examined].

Paralectotypes. 1 ♂ (CM, Norwich); 7 ♂, 8 ♀ (BMNH). All same data as lectotype.

Identity. *Mastrus westoni* (Bridgman) (Horstmann, 1972 : 218).

Chorinaeus flavipes Bridgman, 1881 : 165. Holotype ♀, [England:] Norwich, Mousehold (CM, Norwich) [examined].

The holotype has lost the tips of the fore tarsi.

Identity. *Chorinaeus flavipes* Bridgman.

Cryptus antennatus Bridgman, 1881 : 153. Lectotype ♀, [England: near Norwich,] Eaton (CM, Norwich), by designation of Horstmann (1972 : 219) [examined].

Paralectotype ♀, same data as lectotype (CM, Norwich).

Identity. Junior synonym of *Enclisis macilenta* (Gravenhorst) (Horstmann, 1972 : 219).

Dicoelotus cameroni Bridgman, 1881 : 146. Lectotype ♀, [England:] Norwich, Heigham (CM, Norwich), by fixation of Perkins (1959 : 86) [examined]. *Dicoelotus* is a lapsus for *Dicaelotus*.

? Paralectotype ♀, [Scotland] (BMNH).

The specimen in the BMNH was labelled '? Type' by Morley and is from Cameron's collection. It may be the second syntype.

Identity. *Dicaelotus cameroni* Bridgman (Perkins, 1959 : 86).

Euryproctus minutus Bridgman, 1886 : 358. LECTOTYPE ♂, [England:] near Norwich, Brundall (CM, Norwich), here designated [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. *Syntactus minutus* (Bridgman) **comb. n.**

Exochus fletcheri Bridgman, 1884 : 432. LECTOTYPE ♀, [England: Cambridgeshire,] Wicken Fen (CM, Norwich), here designated [examined].

Paralectotypes. 1 ♂, 1 ♀ [not 2 ♂ as stated by Bridgman], same data as lectotype (CM, Norwich).

Bridgman described the females as males and vice versa.

Identity. *Exochus fletcheri* Bridgman.

Exochus niger Bridgman, 1883 : 169. Holotype ♀, [England:] Norwich, Norkhouse Lane (CM, Norwich) [examined].

Identity. *Triclistus niger* (Bridgman) (Aeschlimann, 1973 : 243).

Glypta annulata Bridgman, 1890*a* : 71. LECTOTYPE ♀, [England: West Sussex,] Slindon (CM, Norwich), here designated [examined].

Paralectotype ♀, same data as lectotype (CM, Norwich).

Bridgman's formal description of this species (unpublished manuscript) gives the information that it was based on two females bred by W. H. B. Fletcher from *Sericornis conchana* from Slindon and that it resembles *G. pictipes* except that the coxae are black. The two syntypes were standing in Bridgman's collection under the label '? sp. like pictipes T. but coxae black' (now attached to the lectotype) and have the corresponding collection data.

Identity. *Glypta annulata* Bridgman.

Glypta parvicaudata Bridgman, 1889 : 435. LECTOTYPE ♀, [SCOTLAND: Outer Hebrides,] Stornoway (CM, Norwich), here designated [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. Glypta parvicaudata Bridgman.

Glypta parvicornuta Bridgman, 1886 : 367. Holotype ♀, [ENGLAND:] Cambridgeshire (CM, Norwich) [examined].

The holotype lacks the tips of the antennae and hind tarsi.

Identity. Glypta parvicornuta Bridgman.

Glypta rubicunda Bridgman, 1890*a* : 70. LECTOTYPE ♀, [GREAT BRITAIN] (CM, Norwich), here designated [examined].

Paralectotypes. 4 ♂, 2 ♀, same data as lectotype (CM, Norwich).

The specimen selected as lectotype is the female bearing J. F. Aubert's det. label. Bridgman (1890*b* : 209) published a second, more formal, description of this species.

Identity. Glypta rubicunda Bridgman.

Glypta rufata Bridgman, 1888 : 378. LECTOTYPE ♀, [ENGLAND: Cambridgeshire,] Wicken Fen (CM, Norwich), here designated [examined].

Paralectotypes. 3 ♂, 1 ♀, same data as lectotype (CM, Norwich).

The specimen selected as lectotype is the female labelled 'type' by J. F. Perkins and bearing J. F. Aubert's det. label.

Identity. Glypta rufata Bridgman.

Glypta similis Bridgman, 1886 : 367. LECTOTYPE ♀, [ENGLAND:] Worthing (CM, Norwich), here designated [examined].

Paralectotypes. 3 ♂, 1 ♀, same data as lectotype (CM, Norwich).

The specimen selected as lectotype is the female bearing J. F. Aubert's det. label.

Identity. Glypta similis Bridgman.

Glypta trochanterata Bridgman, 1886 : 368. LECTOTYPE ♀, [ENGLAND:] Norwich, Mousehold (CM, Norwich), here designated [examined].

Paralectotypes. 4 ♂, 2 ♀, same data as lectotype (CM, Norwich).

The specimen selected as lectotype is the female labelled 'type' by J. F. Perkins and bearing J. F. Aubert's det. label.

Identity. Glypta trochanterata Bridgman.

Grypocentrus bipunctatus Bridgman, 1886 : 358. Holotype ♀, [ENGLAND:] Surrey, Wimbledon (CM, Norwich) [examined].

Identity. Lathrolestes bipunctatus (Bridgman). Generic placement established by Morley (1911*c* : 278, as *Lathrolestus*) here confirmed.

Hemimachus annulicornis Bridgman, 1883 : 160. Syntypes 3 ♂, [WALES: Dyfed,] Milford Haven (BMNH) [examined].

The syntypes were standing in the Fitch collection, together with females, under the label 'annulicornis m.s.' (in Marshall's handwriting).

Identity. Junior synonym of *Gelis rufulus* (Foerster) (Horstmann, 1972 : 221).

Hemimachus confusus Bridgman, 1883 : 159. ?Syntypes 3 ♂, [ENGLAND: Devon,] Barnstaple (BMNH) [examined]; 1 ♂, [ENGLAND: Surrey,] Box Hill (BMNH) [examined].

The four specimens were standing, together with twenty females and one other male (not a Marshall specimen), in the Fitch collection under the name '*rufocinctus*, Gr.'. From other evidence (see under *Hemimachus annulicornis* Bridgman and *Phygadeuon marshalli* Bridgman) there can be little doubt that 'a collection that belonged to Mr Marshall' was in Fitch's possession and thus it seems likely that the four males referred to above are the syntypes of *H. confusus*. One is labelled 'Box Hill' on the underside of the mount and the remainder 'B' (= Barnstaple (Morley, 1915*a*)).

Identity. ?Gelis confusus (Bridgman) **comb. n.**

Hemimachus hyponomeutae Bridgman, 1883 : 155. ?Holotype ♂, [GREAT BRITAIN] (lost).
Identity. Junior synonym of *Gelis corruptor* (Foerster) (Horstmann, 1972 : 221). There are two specimens labelled 'Bred from Hyponomeuta evonymellus. n.s. type' in the Bignell collection (CMAG, Plymouth).

Hemimachus ovatus Bridgman, 1883 : 158. Holotype ♂, [ENGLAND: Norfolk,] Brundall (CM, Norwich) [examined].
Identity. Junior synonym of *Gelis formicarius* (Fabricius) (Horstmann, 1972 : 221).

Hemimachus piceus Bridgman, 1883 : 153. Lectotype ♂, [ENGLAND:] near Norwich, Mousehold (CM, Norwich), by designation of Horstmann (1972 : 221) [examined].
Paralectotypes. 2 ♂, same data as lectotype (CM, Norwich).
Identity. ?*Hemiteles piceus* (Bridgman) (Horstmann, 1972 : 221).

Hemimachus rufipes Bridgman, 1883 : 157. Syntype ♂, [ENGLAND:] Norwich, Luckswood Lane (CM, Norwich) [examined].
Identity. ?Junior synonym of *Gelis cautus* (Foerster) (Horstmann, 1972 : 221). *Gelis rufipes* (Bridgman) is a junior secondary homonym of *G. rufipes* (Foerster).

Hemimachus rufotinctus Bridgman, 1883 : 155. Holotype ♂, [ENGLAND:] near Norwich, Felthorpe (CM, Norwich) [examined].
Identity. Junior synonym of *Gelis cursitans* (Fabricius) (Horstmann, 1972 : 221).

Hemiteles albomarginatus Bridgman, 1888 : 363. Holotype ♀, [ENGLAND: Surrey,] Box Hill (CM, Norwich) [examined].
Identity. Junior synonym of *Mastrus auriculatus* (Thomson) (Horstmann, 1972 : 222).

Hemiteles distinctus Bridgman, 1883 : 151. Holotype ♀, [ENGLAND:] near Exeter (BMNH, on permanent loan from CMAG, Plymouth) [examined].
Identity. *Acrolyta distincta* (Bridgman) (Horstmann, 1972 : 220).

Hemiteles incisus Bridgman, 1883 : 150. Holotype ♀, [ENGLAND: Surrey,] Chobham (lost).
Identity. ?*Mastrus incisus* (Bridgman) (Horstmann, 1972 : 220).

Hemiteles marginatus Bridgman, 1883 : 144. Lectotype ♀, [SCOTLAND: Stirlingshire,] Clober (BMNH), by designation of Horstmann (1972 : 220) [examined].
Paralectotype ♂, same data as lectotype (BMNH).
Identity. *Acrolyta marginata* (Bridgman) (Horstmann, 1972 : 220).

Hemiteles minutus Bridgman, 1886 : 340. Lectotype ♀, [ENGLAND:] Worthing (CM, Norwich), by designation of Horstmann (1972 : 222) [not examined].
Paralectotypes. 3 ♂, 3 ♀, same data as lectotype (CM, Norwich).
Identity. *Aclastus minutus* (Bridgman) (Horstmann, 1972 : 222).

Hemiteles mixtus Bridgman, 1883 : 148. Lectotype ♀, [ENGLAND: Norfolk,] Brundall (CM, Norwich), by designation of Horstmann (1972 : 220) [examined].
Identity. *Medophron mixtus* (Bridgman) (Horstmann, 1972 : 220).

Hemiteles nitidus Bridgman, 1889 : 416. Holotype ♀, [ENGLAND: Dorset,] Chesil Beach (CM, Norwich) [examined].
Identity. ?*Charitopes nitidus* (Bridgman) (Horstmann, 1972 : 223).

Hemiteles obscurus Bridgman, 1883 : 142. Lectotype ♂, [ENGLAND:] Norwich, Eaton (CM, Norwich), by designation of Horstmann (1972 : 219) [examined].
Identity. *Gnypetomorpha obscura* (Bridgman) (Horstmann, 1972 : 219).

Hemiteles politus Bridgman, 1883 : 146. Lectotype ♀, [ENGLAND:] near Exeter (CM, Norwich), by designation of Horstmann (1972 : 220) [examined].
Paralectotype ♀, [GREAT BRITAIN] (CM, Norwich).
Identity. Junior synonym of *Eriplanus micator* (Gravenhorst) (Horstmann, 1972 : 220).

Hemiteles ruficaudatus Bridgman, 1883 : 149. Lectotype ♀, [ENGLAND: Surrey,] near Shere (CM, Norwich), by designation of Horstmann (1972 : 220) [examined].
Identity. *Bathythrix ruficaudatus* (Bridgman) (Horstmann, 1972 : 220).

Hemiteles subannulatus Bridgman, 1883 : 147. Lectotype ♀, [ENGLAND: Surrey,] near Shere (CM, Norwich), by designation of Horstmann (1972 : 220) [examined].

Paralectotypes. 4 ♀, same data as lectotype (BMNH).

The lectotype has the tips of the antennae missing.

Identity. Orthizema subannulatum (Bridgman) (Horstmann, 1972 : 220).

Hemiteles submarginatus Bridgman, 1883 : 143. Lectotype ♀, [ENGLAND:] near Norwich, Mousehold (CM, Norwich), by designation of Horstmann (1972 : 220) [examined].

Paralectotypes. 4 ♂, 2 ♀, same data as lectotype (CM, Norwich).

Identity. Acrolyta submarginata (Bridgman) (Horstmann, 1972 : 220).

Herpestomus distinctus Bridgman, 1888 : 362. Holotype ♀, [ENGLAND: Surrey,] Caterham (CM, Norwich) [examined].

Identity. Phaeogenes distinctus (Bridgman) (Perkins, 1953 : 116).

Herpestomus striatus Bridgman, 1881 : 145. LECTOTYPE ♀, [ENGLAND:] Norwich (CM, Norwich), here designated [examined].

Paralectotype ♀, same data as lectotype (CM, Norwich).

Identity. Junior synonym of *Oiorhinus pallipalpis* Wesmael (Perkins, 1953 : 116).

Hoplocryptus thomsoni Bridgman, 1881 : 154. Replacement name for *Hoplocryptus elegans* Thomson.

Proposed, unnecessarily, because of the existence of another cryptine with the name *elegans—Cryptus elegans* Desvignes. Homonymy is not involved.

Ichneumon heracliana Bridgman, 1884 : 421. LECTOTYPE ♀, [ENGLAND: Norfolk,] Lynn [= Kings Lynn] (CM, Norwich), here designated [examined].

Paralectotypes. 6 ♀, [GREAT BRITAIN] (CM, Norwich).

Identity. Barichneumon heracliana (Bridgman) (Perkins, 1953 : 116).

Ichneumon pulchellatus Bridgman, 1889 : 411. LECTOTYPE ♀, [GREAT BRITAIN] (CM, Norwich), here designated [examined].

Paralectotypes. 2 ♂, same data as lectotype (CM, Norwich).

The lectotype and one paralectotype are mounted on a single card. The lectotype is the left-hand specimen.

Identity. Platylabops pulchellatus (Bridgman) (Perkins, 1953 : 116).

Ichneumon rufidorsatus Bridgman, 1888 : 361. Holotype ♀, [SCOTLAND: Inverness-shire,] Aviemore (CM, Norwich) [examined].

Identity. Ichneumon rufidorsatus Bridgman (Perkins, 1953 : 116).

Limneria (Angitia) aculeata Bridgman, 1889 : 428. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1969 : 455) [examined].

Identity. Diadegma aculeata (Bridgman) (Horstmann, 1969 : 455).

Limneria (Angitia) albonotata Bridgman, 1889 : 427. Lectotype ♂, [ENGLAND: Surrey,] near Shiere [= Shere] (CM, Norwich), by designation of Horstmann (1972 : 227) [examined].

Paralectotype ♂ (CM, Norwich).

Identity. Hyposoter albonotata (Bridgman) (Horstmann, 1969 : 419).

Limneria (Angitia) annulipes Bridgman, 1889 : 424. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1972 : 227) [examined].

Identity. Junior synonym of *Diadegma pusio* (Holmgren) (Horstmann, 1969 : 434).

Limneria barrettii Bridgman, 1881 : 158. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1972 : 223) [examined].

Paralectotypes. 3 ♂, 2 ♀, same data as lectotype (CM, Norwich).

Identity. Hyposoter barrettii (Bridgman) (Horstmann, 1972 : 223).

Limneria brischkei Bridgman, 1882 : 153. Holotype ♀, [ENGLAND: Cornwall,] Falmouth (BMNH, on permanent loan from CMAG, Plymouth) [examined].

Identity. Hyposoter brischkei (Bridgman) (Horstmann, 1972 : 223; teste M. G. Fitton).

Limneria (Angitia) crassa Bridgman, 1889 : 425. Lectotype ♂, [GREAT BRITAIN:] Abbott's Wood (CM, Norwich), by designation of Horstmann (1969 : 434) [examined].
Identity. Diadegma crassa (Bridgman) (Horstmann, 1969 : 434).

Limneria distincta Bridgman, 1888 : 367. Holotype ♂, [GREAT BRITAIN:] Abbott's Wood (CM, Norwich) [examined].
Identity. Junior primary homonym of *Limneria distincta* Provancher. Valid name *Sinophorus renominatus* (Morley) (Horstmann, 1972 : 226).

Limneria elishae Bridgman, 1884 : 426. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1969 : 434) [examined].
Paralectotypes. 2 ♂, 1 ♀, same data as lectotype (CM, Norwich).
Identity. Diadegma elishae (Bridgman) (Horstmann, 1969 : 434).

Limneria (Omorga) fasciata Bridgman, 1889 : 422. Lectotype ♀, [ENGLAND: West Sussex,] Steyning (CM, Norwich), by designation of Horstmann (1972 : 226) [examined].
Paralectotypes. 7 ♂, 1 ♀, same data as lectotype (CM, Norwich); 1 ♂, [ENGLAND: West Sussex,] near Littlehampton (CM, Norwich); 1 ♂, [SCOTLAND: Lewis,] Stornoway (CM, Norwich).
Identity. Junior synonym of *Campoplex hadrocerus* (Thomson) (Horstmann, 1972 : 226).

Limneria fitchii Bridgman, 1881 : 157. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1972 : 223) [examined].
Paralectotypes. 1 ♀ (CM, Norwich); 2 ♀ (BMNH). All same data as lectotype.
Identity. Hyposoter fitchii (Bridgman) (Horstmann, 1972 : 223).

Limneria kriechbaumeri Bridgman, 1882 : 151. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1972 : 224) [examined].
Paralectotypes. 2 ♂, same data as lectotype (CM, Norwich).
Identity. Spudastica kriechbaumeri (Bridgman) (Horstmann, 1972 : 224).

Limneria monticolana Bridgman, 1881 : 159. Lectotype ♂, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1970 : 81) [examined].
The lectotype has the mid and hind tarsi missing.
Identity. Junior synonym of *Meloboris gracilis* Holmgren (Horstmann, 1972 : 224).

Limneria reticulata Bridgman, 1884 : 430. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1969 : 441) [examined].
Paralectotypes. 3 ♂, 2 ♀, same data as lectotype (CM, Norwich).
Identity. Junior synonym of *Diadegma apostata* (Gravenhorst) (Horstmann, 1969 : 441).

Limneria rufa Bridgman, 1882 : 152. Lectotype ♂, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1972 : 224) [examined].
Paralectotypes. 1 ♂ (CM, Norwich); 1 ♀ (CMAG, Plymouth). Both same data as lectotype.
Identity. Junior synonym of *Hyposoter orbator* (Gravenhorst) (Horstmann, 1972 : 224).

Limneria rufata Bridgman, 1884 : 429. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by fixation of Morley (1915*c* : 201) (labelled as lectotype by Horstmann, 1972 : 225) [examined].
Paralectotypes. 3 ♂, 2 ♀, same data as lectotype (CM, Norwich).
Identity. Diadegma rufata (Bridgman) (Horstmann, 1972 : 225).

Limneria ruficornis Bridgman, 1884 : 429. Lectotype ♀, [ENGLAND:] Worcestershire (CM, Norwich), by designation of Horstmann (1972 : 224) [examined].
Paralectotypes. 2 ♂, same data as lectotype (CM, Norwich).
Identity. Junior synonym of *Meloboris alternans* (Gravenhorst) (Horstmann, 1972 : 224).

Limneria (Angitia) scotiae Bridgman, 1889 : 426. Lectotype ♀, [SCOTLAND:] Shetland (CM, Norwich), by designation of Horstmann (1969 : 435) [examined].
Paralectotypes. 5 ♂, same data as lectotype (CM, Norwich).
Identity. Diadegma scotiae (Bridgman) (Horstmann, 1969 : 435).

Limneria (Omorga) submarginata Bridgman, 1889 : 423. Lectotype ♀, [ENGLAND:] Cambridgeshire (CM, Norwich), by designation of Horstmann (1972 : 226) [examined].

Paralectotypes. 2 ♂, 2 ♀, same data as lectotype (CM, Norwich).

Identity. Junior synonym of *Campoplex coracinus* (Thomson) (Horstmann, 1972 : 226).

Limneria (Anilasta) teucrii Bridgman, 1889 : 429. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by fixation of Morley (1915*c* : 212) (labelled as lectotype by Horstmann, 1972 : 227) [examined].

Paralectotypes. 3 ♂ (CM, Norwich); 2 ♀ (CMAG, Plymouth). All same data as lectotype.

Identity. Junior synonym of *Hyposoter barrettii* (Bridgman) (Horstmann, 1972 : 227).

Limneria tripunctata Bridgman, 1886 : 351. Holotype ♀, [ENGLAND: London,] Peckham (CM, Norwich) [examined].

Identity. *Diadegma tripunctata* (Bridgman) (Horstmann, 1972 : 226).

Limneria variabilis Bridgman, 1886 : 352. Lectotype ♀, [ENGLAND: Cambridgeshire,] Wicken (CM, Norwich), by designation of Horstmann (1972 : 226) [examined].

Paralectotypes. 6 ♂, 5 ♀, same data as lectotype (CM, Norwich).

Identity. *Campoplex variabilis* (Bridgman) (Horstmann, 1972 : 226).

Lissonota distincta Bridgman, 1889 : 437. Holotype ♀, [ENGLAND: West Sussex,] Arundel Park (CM, Norwich) [examined].

Identity. *Lissonota distincta* Bridgman.

Lissonota fletcheri Bridgman, 1882 : 163. LECTOTYPE ♀, [ENGLAND:] Worcestershire (CM, Norwich), here designated [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. *Lissonota fletcheri* Bridgman.

Lissonota formosa Bridgman, 1888 : 378. Holotype ♀, [GREAT BRITAIN] (CM, Norwich) [examined].

Identity. *Lissonota formosa* Bridgman.

Lissonota nitida Bridgman, 1886 : 371. Holotype ♀, [GREAT BRITAIN] (CM, Norwich) [examined].

The holotype lacks the tips of the hind tarsi.

Identity. *Lissonota nitida* Bridgman.

Lissonota obsoleta Bridgman, 1889 : 436. Syntypes 1 ♂, 1 ♀, [ENGLAND: West Sussex,] near Littlehampton (lost).

Identity. Unknown, the name remains a *nomen dubium*.

Lissonota rufomedia Bridgman, 1886 : 370. LECTOTYPE ♀, [SCOTLAND:] Rannoch (CM, Norwich), here designated [examined].

Paralectotypes. 5 ♂, 5 ♀, same data as lectotype (CM, Norwich); 1 ♀, [ENGLAND: West Sussex,] Worthing (CM, Norwich).

Identity. Junior synonym of *Lissonota variabilis* Holmgren (Aubert, 1972 : 6).

Lissonota subaciculata Bridgman, 1886 : 372. Holotype ♀, [GREAT BRITAIN] (CM, Norwich) [examined].

Identity. *Lissonota subaciculata* Bridgman.

Lissonota transversa Bridgman, 1889 : 438. Holotype ♀, [ENGLAND:] Norwich (CM, Norwich) [examined].

Capron's specimens are not regarded as syntypes because of the way in which Bridgman's statement on material is worded.

Identity. Junior synonym of *Lissonota folii* Thomson (Aubert, 1969*b* : 90).

Lissonota trochanterata Bridgman, 1889 : 438. Holotype ♀, [ENGLAND:] near Lincoln (CM, Norwich) [examined].

Identity. Junior synonym of *Lissonota variabilis* Holmgren (Aubert, 1972 : 6).

Mesochorus aciculatus Bridgman, 1881 : 162. Syntypes 2 ♀, [GREAT BRITAIN] (lost).

Two specimens in the Bridgman collection (CM, Norwich) labelled 'Syntypes aciculatus' by K. Horstmann were, according to data on the mount, reared in 1882 and therefore cannot be types. The types are not in the Bignell collection (CMAG, Plymouth). Two males from the Bignell collection, where they were incorrectly labelled as types of *aciculatus*, are now in the BMNH collection (on permanent loan from CMAG, Plymouth).

Identity. ? *Mesochorus aciculatus* Bridgman.

Mesochorus facialis Bridgman, 1884 : 431. LECTOTYPE ♀, [GREAT BRITAIN] (CM, Norwich), here designated [examined].

Paralectotypes. 3 ♂, 1 ♀ (CM, Norwich); 8 ♂, 1 ♀ (CMAG, Plymouth). All same data as lectotype.

The lectotype is on the same mount as 1 ♂ and 1 ♀ paralectotypes.

Identity. *Mesochorus facialis* Bridgman.

Mesochorus formosus Bridgman, 1882 : 154. LECTOTYPE ♀, [GREAT BRITAIN] (CM, Norwich), here designated [examined].

Paralectotypes. 4 ♀ (BMNH); 4 ♀ (CMAG, Plymouth). All same data as lectotype.

Identity. *Mesochorus formosus* Bridgman.

Mesochorus hirsutus Bridgman, 1883 : 168. LECTOTYPE ♂, [ENGLAND: Surrey,] Shere (CM, Norwich), here designated [examined].

? Paralectotypes. 2 ♂, 1 ♀, same data as lectotype (BMNH).

The ? paralectotypes are from Capron's collection and are labelled 'dorsalis Holmg.'.

Identity. Junior synonym of *Astiphromma dorsale* (Holmgren) (Thomson, 1886 : 328).

Mesochorus pectinipes Bridgman, 1883 : 166. Holotype ♂, [ENGLAND:] Norwich, Norkhouse Lane (CM, Norwich) [examined].

Identity. *Mesochorus pectinipes* Bridgman.

Mesoleius attenuatus Bridgman, 1888 : 371. Holotype ♂, [GREAT BRITAIN] (CM, Norwich) [examined].

The holotype has the tips of the antennae and fore and mid tarsi missing.

Identity. *Alexeter attenuatus* (Bridgman) **comb. n.**

Mesoleius bignellii Bridgman, 1881 : 163. Holotype ♀, [GREAT BRITAIN] (BMNH, on permanent loan from CMAG, Plymouth) [examined].

The holotype lacks the basal part of the first segment of the gaster.

Identity. *Perispuda bignellii* (Bridgman). Generic placement established by Morley (1911*c* : 231) here confirmed.

Mesoleius caninae Bridgman, 1886 : 363. LECTOTYPE ♀, [ENGLAND:] Norwich (CM, Norwich), here designated [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. ? *Otlophorus caninae* (Bridgman) **comb. n.** (det. H. K. Townes).

Mesoleius pini Bridgman, 1882 : 156. LECTOTYPE ♀, SCOTLAND (CM, Norwich), here designated [examined].

Paralectotypes. 2 ♂, same data as lectotype (CM, Norwich).

The lectotype has the tips of the mid and hind tarsi missing.

Identity. *Lamachus pini* (Bridgman). Generic placement established by Schmiedeknecht (1914 : 2905) here confirmed.

Mesoleptus marginatus Bridgman, 1886 : 356. Holotype ♂, [ENGLAND:] near Norwich, Brundall (CM, Norwich) [examined].

Identity. *Hadrodactylus marginatus* (Bridgman) **comb. n.**

Mesoleptus scutellatus Bridgman, 1886 : 356. Holotype ♂ [not ♀ as stated by Bridgman], [ENGLAND:] Norfolk, Horning Ferry (CM, Norwich) [examined].

Identity. **Syn. n.** of *Gunomeria macrodactyla* (Holmgren, 1855 : 68 (*Mesoleptus*)), lectotype ♀, SWEDEN (NR, Stockholm) [not examined].

Monoblastus caproni Bridgman, 1882 : 159. LECTOTYPE ♀ [the syntypes are not all males as stated by Bridgman], [ENGLAND: Surrey,] Shere (CM, Norwich), here designated [examined].

Paralectotypes. 2 ♂, 1 ♀ (CM, Norwich); 3 ♂, 3 ♀ (BMNH). All same data as lectotype.

Morley's type restriction (1911*c* : 287) is not accepted because he did not label any one specimen as type and all of his specimens (from Capron's collection, now in the BMNH) are mounted on a single card. Further, since there is no definite evidence that Bridgman returned any of the syntypes to Capron a lectotype has been designated from the specimens in Norwich.

Identity. *Rhorus caproni* (Bridgman) **comb. n.**

Nemeritis rufipes Bridgman, 1883 : 166. Holotype ♀, [ENGLAND: Surrey,] Shere (CM, Norwich) [examined].

Identity. Junior secondary homonym of *Campoplex rufipes* (Gravenhorst). Valid name *Campoplex ruficoxa* (Thomson) (Horstmann, 1972 : 224).

Perilissus fumatus Bridgman, 1880*a* : 54. LECTOTYPE ♂, [ENGLAND:] near Norwich, Earlham (CM, Norwich), here designated [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. Junior synonym of *Labrossyta scotopterus* (Gravenhorst) (Morley, 1911*c* : 131).

Perilissus minutus Bridgman, 1888 : 370. LECTOTYPE ♀, [ENGLAND: Surrey,] Shere (CM, Norwich), here designated [examined].

Paralectotypes. 1 ♂ (CM, Norwich); 3 ♂, 2 ♀ (BMNH). All same data as lectotype.

The lectotype and one male paralectotype are mounted on one card. The lectotype is the left hand specimen.

Identity. *Lathrolestes minutus* (Bridgman) **comb. n.**

Perilissus triangulatus Bridgman, 1886 : 362. LECTOTYPE ♀, [ENGLAND:] Dulwich (CM, Norwich), here designated [examined].

Paralectotype ♂, [ENGLAND:] Peckham (CM, Norwich).

The lectotype has the tips of the antennae missing.

Identity. **Syn. n.** of *Azelus erythropalpus* (Gmelin, 1790 : 2707 (*Ichneumon*)), type(s) [? sex] (destroyed).

Pezomachus brevis Bridgman, 1883 : 162. Holotype ♀, [ENGLAND:] Dover (BMNH) [examined].

The holotype has the mid femora and tibiae missing and parts of other appendages have been eaten by beetles. This specimen was referred to as the doubtful holotype by Horstmann (1972 : 221) but in addition to the data given by him it bears a label (in Bridgman's handwriting) 'Not in Forster ? n. sp. Have taken . . . [rest illegible, 1 or 2 words]' with 'P. brevis n. sp.' on the reverse.

Identity. *Gelis brevis* (Bridgman) (Horstmann, 1972 : 221).

Pezomachus costatus Bridgman, 1886 : 341. Syntypes 2 ♀, [ENGLAND:] Norwich, Norkhouse Lane (CM, Norwich) [examined]; 2 ♀, [ENGLAND: Surrey,] Shere (CM, Norwich) [examined]; 3 ♀, [ENGLAND: Surrey,] Shere (BMNH) [examined].

Identity. Junior synonym of *Gelis kiesenwetteri* (Foerster) (Horstmann, 1972 : 222).

Pezomachus foersteri Bridgman, 1886 : 343. Syntypes 1 ♀, [ENGLAND: Surrey,] Shere (CM, Norwich) [examined]; 3 ♀, same data (BMNH) [examined].

Identity. *Gelis foersteri* (Bridgman) (Horstmann, 1972 : 222).

Pezomachus hieracii Bridgman, 1883 : 162. Syntypes 1 ♀, [ENGLAND:] Liverpool (CM, Norwich) [examined]; 4 ♀, [GREAT BRITAIN] (BMNH, on permanent loan from CMAG, Plymouth) [examined].

Identity. *Gelis hieracii* (Bridgman) (Horstmann, 1972 : 222).

Pezomachus vagantiformis Bridgman, 1886 : 342. Syntypes 1 ♀, [ENGLAND: Surrey,] Shere (CM, Norwich) [examined]; 7 ♀, same data (BMNH) [examined].

Identity. *Gelis vagantiformis* (Bridgman) (Horstmann, 1972 : 222).

Phaeogenes formosus Bridgman, 1881 : 149. Holotype ♀, [ENGLAND:] Norwich (CM, Norwich) [examined].

Identity. Junior synonym of *Aethecerus longulus* Wesmael (Perkins, 1953 : 116).

Phaeogenes nitidus Bridgman, 1886 : 337. LECTOTYPE ♂, [GREAT BRITAIN] (CM, Norwich), here designated [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. Junior synonym of *Cratichneumon magus* (Wesmael) (Perkins, 1953 : 116).

Phaeogenes similis Bridgman, 1881 : 148. Holotype ♀, [GREAT BRITAIN] (lost).

The only specimen standing under this name in the Bridgman collection (labelled 'TYPE = Thyraeella collaris Grav. ♀ det. J. F. Perkins 1951') was, according to Bridgman's notebook, captured on 28 May 1885 and therefore cannot be the holotype.

Identity. Junior synonym of *Thyraeella collaris* (Gravenhorst) (Perkins, 1953 : 116. But see note above).

Phrudus monilicornis Bridgman, 1886 : 361. LECTOTYPE ♀, [ENGLAND: Surrey,] Shere (CM, Norwich), here designated [examined].

Since Bridgman's description suggests that he had only one male and one female before him a further fourteen specimens from Capron's collection (BMNH) are not regarded as paralectotypes.

Identity. *Phrudus monilicornis* (Bridgman), combination established by Dalla Torre (1901 : 329). *Phrudus* Bridgman is a junior synonym and homonym of *Phrudus* Foerster.

Phygadeuon flavopunctatus Bridgman, 1889 : 414. Lectotype ♂, [ENGLAND:] near Norwich, Mousehold (CM, Norwich), by designation of Horstmann (1972 : 223) [examined].

Paralectotypes. 2 ♂, same data as lectotype (CM, Norwich).

Identity. *Polytribax flavopunctatus* (Bridgman) (Horstmann, 1972 : 223).

Phygadeuon marshalli Bridgman, 1883 : 141. LECTOTYPE ♂, [ENGLAND: Devon,] Barnstaple [not Bugbrooke as stated by Bridgman] (BMNH), here designated [examined].

Paralectotype ♂, same data as lectotype (BMNH).

The two syntypes were standing in the Fitch collection under the labels 'procerus Gr. var. 2. n. sp.' (in Marshall's handwriting. Now attached to the lectotype.) and '389. Marshalli, Bdg.' (from Morley's catalogue) together with two circular labels marked 'S.T.'. The locality is indicated on the undersides of the card mounts of the specimens as 'B' which (Morley, 1915*a*) means Barnstaple. Presumably Bridgman misinterpreted this as indicating Bugbrooke.

The specimen referred to by Horstmann (1972 : 219) as the ? Holotype has no type status.

The lectotype and paralectotype are the same specimens as the lectotype and paralectotype, respectively, of *Phygadeuon marshalli* Bridgman & Fitch.

Identity. Junior primary homonym and synonym of *Phygadeuon marshalli* Bridgman & Fitch. Valid name ?*Theroscopus marshalli* (Bridgman & Fitch).

Phygadeuon (Microcryptus) rufoniger Bridgman, 1889 : 415. Lectotype ♀, [ENGLAND: East Sussex,] Ashdown Forest (CM, Norwich), by designation of Horstmann (1972 : 223) [examined].

Paralectotype ♀, same data as lectotype (CM, Norwich).

Identity. Junior synonym of *Aptesis bifrons* (Gmelin) (Horstmann, 1972 : 223).

Phygadeuon rusticellae Bridgman, 1886 : 337. Lectotype ♀, [ENGLAND:] Bognor (CM, Norwich), by designation of Horstmann (1972 : 222) [examined].

Paralectotypes. 4 ♂, 7 ♀, same data as lectotype (CM, Norwich).

Identity. *Phygadeuon rusticellae* Bridgman.

Phygadeuon tarsatus Bridgman, 1881 : 150. Lectotype ♀, [SCOTLAND:] Arran, near Lamlash (BMNH), by designation of Townes, Momoi & Townes (1965 : 160) [examined].

Paralectotypes. 1 ♂ (BMNH); 1 ♀ (CM, Norwich). Both same data as lectotype.

Identity. *Aconias tarsatus* (Bridgman) (Townes, Momoi & Townes, 1965 : 160).

Pimpla similis Bridgman, 1884 : 433. LECTOTYPE ♀, [ENGLAND:] near Norwich, Brundall (CM, Norwich), here designated [examined].

Paralectotypes. 3 ♀, [GREAT BRITAIN] (CM, Norwich).

Identity. Junior synonym of *Scambus nigricans* (Thomson) (Oehlke, 1967 : 3).

Platylabus transversus Bridgman, 1889 : 412. LECTOTYPE ♂, [GREAT BRITAIN] (CM, Norwich), here designated [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. *Platylabus transversus* Bridgman (Perkins, 1953 : 116).

Polyblastus unicinctus Bridgman, 1889 : 433. Holotype ♀, [ENGLAND:] Devon, Slapton (CM, Norwich) [examined].

Identity. **Syn. n.** of *Polyblastus cothurnatus* (Gravenhorst, 1829*b* : 285 (*Tryphon*)), holotype ♀, Warmbrunn (lost).

Polysphincta subrufa Bridgman, 1888 : 377. LECTOTYPE ♀, [ENGLAND: Norfolk,] Lynn [=Kings Lynn] (CM, Norwich), here designated [examined].

Paralectotype ♀, [SCOTLAND: Inverness-shire,] Aviemore (CM, Norwich).

Identity. *Ctenochira subrufa* (Bridgman) **comb. n.**

Prionopoda glaber Bridgman, 1886 : 360. LECTOTYPE ♀, [ENGLAND:] Norwich (CM, Norwich), here designated [examined].

Paralectotypes. 4 ♂, same data as lectotype (CM, Norwich).

Identity. *Rhorus glaber* (Bridgman) **comb. n.**

Sagaritis fasciata Bridgman, 1888 : 366. Lectotype ♀, [ENGLAND: Norfolk,] Horning Ferry (CM, Norwich), by designation of Horstmann (1972 : 226) [examined].

Paralectotypes. 1 ♂, 1 ♀, same data as lectotype (CM, Norwich).

Identity. *Campoletis fasciata* (Bridgman) (Horstmann, 1972 : 226).

Sagaritis incisa Bridgman, 1883 : 165. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1972 : 224) [examined].

Paralectotype ♀, same data as lectotype (CM, Norwich).

Identity. *Campoletis incisa* (Bridgman) (Horstmann, 1972 : 224).

Sagaritis postica Bridgman, 1886 : 350. Holotype ♀, [ENGLAND,] near Colchester (lost). This specimen is presumably also the type of *Sagaritis postica* Bridgman & Fitch.

Identity. Junior primary homonym and synonym of *Sagaritis postica* Bridgman & Fitch. Valid name *Campoletis postica* (Bridgman & Fitch) (Horstmann, 1972 : 226).

Sagaritis punctata Bridgman, 1886 : 349. Lectotype ♀, [GREAT BRITAIN] (CM, Norwich), by designation of Horstmann (1972 : 225) [examined].

Paralectotypes. 5 ♂, 2 ♀, same data as lectotype (CM, Norwich).

Identity. *Campoletis punctata* (Bridgman) (Horstmann, 1972 : 225).

Thaumatotypus billupsi Bridgman, 1882 : 145. Holotype ♀, [ENGLAND: Surrey,] Box Hill [not Burford Bridge as stated by Bridgman] (BMNH) [examined].

The tips of the antennae are missing from the holotype. There is a slight possibility that this specimen is not the holotype.

Identity. Junior synonym of *Polyaulon paradoxus* (Zetterstedt) (Horstmann, 1972 : 219).

Theroscopus niger Bridgman, 1883 : 152. Holotype ♀, [SCOTLAND: Inverness-shire,] Kingussie (BMNH) [examined].

Identity. ?*Mastrus niger* (Bridgman) (Horstmann, 1972 : 221).

Thersilochus carinatus Bridgman, 1889 : 430. Holotype ♀, [ENGLAND:] Norwich, Luckswood Lane (CM, Norwich) [examined].

Identity. Junior synonym of *Diaparsis carinifer* (Thomson) (Horstmann, 1971 : 103).

Thersilochus marginatus Bridgman, 1886 : 354. Lectotype ♀, [ENGLAND:] near Plymouth (CM, Norwich), by designation of Horstmann (1971 : 93) [examined].

There are four specimens under this name in the Bignell collection (CMAG, Plymouth), of which two may be paralectotypes.

Identity. *Probles marginatus* (Bridgman) (Horstmann, 1971 : 93).

Thersilochus minutus Bridgman, 1889 : 431. Lectotype ♀, [ENGLAND: Surrey,] Shere (CM, Norwich), by designation of Horstmann (1971 : 74) [examined].

Paralectotype ♂, same data as lectotype (CM, Norwich).

Identity. *Phradis minutus* (Bridgman) (Horstmann, 1971 : 74).

Thersilochus nitidus Bridgman, 1889 : 430. ?Holotype ♀, [ENGLAND: Wiltshire,] Nunton (BMNH) [examined].

The ?holotype was labelled as such by Horstmann. It also bears labels: 'N' (on underside of mount), 'Wilts: Nunton, nr. Salisbury. Marshall Coll. B.M. 1904–120.' (printed), and 'B.M. Coll. 1949 under Thersiloch. nitidus, Bdgm.'.

There is no direct evidence that this is the holotype.

Identity. *Pygmaeolus nitidus* (Bridgman). Type-species of *Pygmaeolus* Hellén.

Thymaris fasciatus Bridgman, 1886 : 348. Holotype ♂, [ENGLAND:] Norfolk (CM, Norwich) [examined].

This specimen is also the holotype of *Thymaris fasciatus* Bridgman & Fitch.

Identity. Junior primary homonym and synonym of *Thymaris fasciatus* Bridgman & Fitch. Valid name *Cymodusa fasciatus* (Bridgman & Fitch).

BRIDGMAN, J. B. & FITCH, E. A.

Bridgman & Fitch published a series of keys to British ichneumonids which include a number of species described as new by Bridgman. Unfortunately in the following cases the keys appeared before Bridgman's formal descriptions and therefore validate the names concerned.

Anomalon cylindricum Bridgman & Fitch, 1884 (October) : 224. LECTOTYPE ♀, [GREAT BRITAIN] (PEM, London), here designated [examined].

Paralectotype ♀, same data as lectotype (PEM, London).

The lectotype and paralectotype are the same specimens as the lectotype and paralectotype, respectively, of *Anomalon cylindricum* Bridgman.

Identity. *Barylypa cylindricum* (Bridgman & Fitch) **comb. n.**

Anomalon minutum Bridgman & Fitch, 1884 (October) : 224. LECTOTYPE ♀, [ENGLAND: Hampshire,] New Forest (CM, Norwich), here designated [examined].

Paralectotypes. 2 ♂, 5 ♀, same data as lectotype (CM, Norwich).

The lectotype and paralectotypes are the same specimens as the lectotype and paralectotypes, respectively, of *Anomalon minutum* Bridgman.

Identity. *Agrypon minutum* (Bridgman & Fitch) (det. I. D. Gauld).

Campoplex costulatus Bridgman & Fitch, 1885*a* : 17. Type(s) ♂, [GREAT BRITAIN] (lost).

The type-material of this species is presumably the same as that of *Campoplex costulatus* Bridgman.

Identity. Junior synonym of *Dusona anceps* (Holmgren). Synonymy of Bridgman's species established by Hinz (1972 : 47).

Campoplex femorator Bridgman & Fitch, 1885*a* : 17. LECTOTYPE ♀, [GREAT BRITAIN] (CM, Norwich), here designated [examined].

Paralectotypes. 1 ♂ (CM, Norwich); 2 ♂, 2 ♀ (BMNH). All same data as lectotype.

The lectotype and paralectotypes are the same specimens as the lectotype and paralectotypes, respectively, of *Campoplex femorator* Bridgman.

Identity. Junior synonym of *Dusona polita* (Foerster). Synonymy of Bridgman's species established by Hinz (1972 : 47).

Campoplex punctatus Bridgman & Fitch, 1885*a* : 16. Holotype ♂, [GREAT BRITAIN] (CM, Norwich) [examined].

This specimen is also the holotype of *Campoplex punctatus* Bridgman.

Identity. Junior synonym of *Dusona petiolator* (Fabricius). Synonymy of Bridgman's species established by Hinz (1972 : 47).

Phygadeuon marshalli Bridgman & Fitch, 1882*a* : 228. LECTOTYPE ♂, [ENGLAND: Devon,] Barnstaple (BMNH), here designated [examined].

Paralectotype ♂, same data as lectotype (BMNH).

Details of the type-material were given by the authors in the next paper in the series (1882*b* : 275). The lectotype and paralectotype are the same specimens as the lectotype and paralectotype, respectively, of *Phygadeuon marshalli* Bridgman.

Identity. ?*Theroscopus marshalli* (Bridgman & Fitch) **comb. n.**

Sagaritis postica Bridgman & Fitch, 1885*b* : 101. Type(s) [?sex], [GREAT BRITAIN] (lost).

The type-material of this species is presumably the same as that of *Sagaritis postica* Bridgman.

Identity. *Campoletis postica* (Bridgman & Fitch). Generic placement established by Horstmann (1972 : 226) for Bridgman's species.

Thymaris fasciatus Bridgman & Fitch, 1885*b* : 100. Holotype ♂, [ENGLAND:] Norfolk (CM, Norwich) [examined].

This specimen is also the holotype of *Thymaris fasciatus* Bridgman.

Identity. *Cymodusa fasciatus* (Bridgman & Fitch) **comb. n.**

CAMERON, P.

Cameron described a large number of Ichneumonidae but only one species from the western Palaearctic.

Crypturus fulvipes Cameron, 1901 : 330. Holotype ♀, GIBRALTAR (BMNH) [examined].

The holotype has lost the tips of the hind tarsi.

Identity. *Latibulus fulvipes* (Cameron) **comb. n.**

CAPRON, E.

Pezomachus pilosus Capron, 1888 : 217. LECTOTYPE ♀, [ENGLAND: Surrey,] Shiere [=Shere] (BMNH), here designated [examined].

Paralectotypes. 2 ♀, same data as lectotype (BMNH).

The three syntypes were mounted on a single card with 'pilosus Capron' (in Capron's handwriting) on a strip of paper glued to the card. The paralectotypes remain on this card. The lectotype has been remounted (? by J. F. Perkins) on a card point.

Identity. *Gelis pilosus* (Capron). Generic placement established by Ceballos (1925 : 190) here confirmed.

Pimpla varicauda Capron, 1888 : 217. LECTOTYPE ♀, [ENGLAND: Surrey,] Shiere [=Shere] (BMNH), here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The lectotype and paralectotype are mounted on a single card with 'varicauda. Capron' (in Capron's handwriting) and 'EMM 1888, p. 218, ♀.' (in Morley's handwriting) on a strip of paper glued to the card. The lectotype is the left-hand specimen.

Identity. Junior synonym of *Stilbops vetula* (Gravenhorst). Synonymy indicated by Morley (1908 : 173). Generic placement here confirmed.

CURTIS, J.

Neboiss (1963) gives some notes on the Curtis collection and associated manuscript material.

Curtis attributes a number of names proposed in his *British Entomology* to other authors (notably Haliday) but I consider Curtis to be responsible for the descriptions as published and therefore as author of the species concerned.

Agriotypus armatus Curtis, 1832 : 389. LECTOTYPE ♀, [SCOTLAND:] near Lanark, on the [River] Clyde (BMNH), here designated [examined].

Paralectotypes. 2 ♂, 4 ♀, same data as lectotype (NMV, Melbourne).

Identity. *Agriotypus armatus* Curtis.

Alomya victor Curtis, 1826 : 120. LECTOTYPE ♀, [SCOTLAND: Perthshire,] Dunkeld (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

The lectotype lacks the tips of the hind tarsi and the gaster is detached.

Eleven further specimens [not examined] in the Curtis collection may be paralectotypes.

Identity. Junior synonym of *Alomya debellator* (Fabricius).

Anomalon vesparum Curtis, 1828 : 198. LECTOTYPE ♀, [GREAT BRITAIN] (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

The lectotype lacks the mid legs, except the left coxa, and the tips of the hind tarsi.

Five further specimens [not examined] in the Curtis collection may be paralectotypes.

Identity. *Sphecophaga vesparum* (Curtis). Type-species of *Sphecophaga* Westwood.

Banchus farrani Curtis, 1836 : 588. LECTOTYPE ♂, [IRELAND:] Connemara (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

The lectotype lacks the tips of the antennae.

A further specimen [not examined] in the Curtis collection is probably the paralectotype.

Identity. Junior synonym of *Banchus volutatorius* (Linnaeus) (det. M. G. Fitton).

Bassus athaliaeperda Curtis, 1860 : 53. Holotype ♂, [GREAT BRITAIN] (NMV, Melbourne) [examined].

The holotype lacks the tips of the hind tarsi.

Identity. ?*Arbelus athaliaeperda* (Curtis) **comb. n.**

Cremastus buoliana Curtis, 1854 : 60. LECTOTYPE ♀, [ENGLAND:] Clifton Nursery (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

Identity. *Temelucha buoliana* (Curtis) **comb. n.**

Cryptus bellosus Curtis, 1837 : 668. LECTOTYPE ♀, [GREAT BRITAIN] (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

The lectotype lacks the tips of the hind tarsi.

A further specimen [not examined] in the Curtis collection is probably the paralectotype.

Identity. Junior synonym of *Aritranis signatorius* (Fabricius) (Morley, 1907 : 294).

Euceros albitarsus Curtis, 1837 : 660. Holotype ♂, [ENGLAND:] Northamptonshire, near Milton (NMV, Melbourne) [examined].

The holotype lacks the apices of the antennae and all tarsi; and the gaster except the first two segments.

Identity. *Euceros albitarsus* Curtis.

Ichneumon atropos Curtis, 1828 : 234. LECTOTYPE ♀, [ENGLAND:] ?Kent, Rochester *or* Darent[h] Wood (BMNH), here designated (labelled by C. Morley) [examined].

Although there is now little evidence to support Morley's assumption (1902 : 118) that the BMNH specimen is an original syntype, it is here designated as lectotype. Curtis's statement 'In the Cabinets of Mr. Davis and Mr. S. Sulivan.' is taken to exclude any of his own material from the type-series. There are 2 ♀ in the Curtis collection, conspecific with the lectotype.

Identity. Junior synonym of *Callajoppa exaltatoria* (Panzer) (Morley, 1902 : 118, as *Trogus*).

Lampronota crenicornis Curtis, 1832 : 407. LECTOTYPE ♀, IRELAND (NMI, Dublin), here designated [examined].

Paralectotype ♂, same data as lectotype (NMI, Dublin).

The lectotype and paralectotype are from the Haliday collection. They were among material identified as *crenicornis* by Morley (1913*b* : 263) who attributed the species to Haliday, 1838. Therefore Morley's 'type' has no status.

Identity. Junior synonym of *Cylloceria caligata* (Gravenhorst) (Morley, 1908 : 255, as *Lampronota*).

Mesochorus basalis Curtis, 1833 : 464. LECTOTYPE ♀, [ENGLAND: Hampshire,] New Forest (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

The lectotype lacks the tips of the antennae.

Identity. Mesochorus basalis Curtis.

Mesochorus fulgurans Curtis, 1833 : 464. Holotype ♀, IRELAND (NMV, Melbourne) [examined].

Identity. Mesochorus fulgurans Curtis.

Mesochorus olerum Curtis, 1833 : 464. LECTOTYPE ♀, [GREAT BRITAIN] (NMV, Melbourne), here designated [examined].

Paralectotype ♂, same data as lectotype (NMV, Melbourne).

Identity. Mesochorus olerum Curtis.

Mesochorus sericans Curtis, 1833 : 464. LECTOTYPE ♀, IRELAND: ?near Belfast (NMI, Dublin), here designated [examined].

Paralectotype ♂, same data as lectotype (NMI, Dublin).

The lectotype and paralectotype were standing under *Mesochorus* in the Haliday collection. There can be no doubt that they are syntypes of Curtis's species.

Identity. Astiphromma sericans (Curtis) **comb. n.**

Mesochorus splenium Curtis, 1833 : 464. Holotype ♂, [ENGLAND: Hampshire,] New Forest (NMV, Melbourne) [examined].

The holotype is badly damaged: the head, gaster and appendages are detached from the thorax.

Identity. Astiphromma splenium (Curtis) **comb. n.**

Mesochorus sylvarum Curtis, 1833 : 464. LECTOTYPE ♂, [GREAT BRITAIN] (NMV, Melbourne), here designated [examined].

? Paralectotype ♂, same data as lectotype (NMV, Melbourne).

The ?paralectotype does not agree entirely with the original description, notably in the colour of the mesoscutum.

Identity. Mesochorus sylvarum Curtis.

Mesoleptus gracilipes Curtis, 1837 : 644. Holotype ♀ [not ♂ as stated by Curtis], [SCOTLAND:] near Lanark (NMV, Melbourne) [examined].

Identity. Alexeter gracilipes (Curtis) **comb. n.**

Mesoleptus speciosus Curtis, 1837 : 644. Holotype ♂, [ENGLAND:] Coomb-wood (lost).

Identity. Unknown, the name remains a *nomen dubium.*

Mesoleptus ventralis Curtis, 1837 : 644. LECTOTYPE ♂, [GREAT BRITAIN] (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

A further three specimens [not examined] in the Curtis collection may be paralectotypes.

Identity. Hadrodactylus ventralis (Curtis) **comb. n.**

Mesoleptus waltoni Curtis, 1837 : 644. LECTOTYPE ♂, [ENGLAND:] Yorkshire, Knaresborough, by the River Nidd (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

The lectotype lacks antennae, most of the forelegs and most of the hind tarsi.

A further specimen [not examined] in the Curtis collection may be a paralectotype.

Identity. Junior synonym of *Sympherta fuscicornis* (Gmelin) (Morley, 1911*c* : 237, as *Catoglyptus*).

Peltastes pini Curtis, 1824 : 4. Syntypes ♂ ♀, [ENGLAND:] Hampshire, near Ringwood (lost).

Although there are three specimens (1 ♂, 2 ♀ *Metopius dentatus* (Fabricius)) standing under *dentatus*/*pini* in the Curtis collection, Curtis's statement 'In the cabinet of Mr Bentley' is taken to exclude any of his own material from the type-series. It seems unlikely that Curtis received any of the original type material (Curtis, 1829 : 4). Bentley's collection has not been located.

Identity. Junior synonym of *Metopius dentatus* (Fabricius) (Morley, 1911*c* : 3).

Pimpla aethiops Curtis, 1828 : 214. LECTOTYPE ♀, [GREAT BRITAIN] (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

A further specimen [not examined] in the Curtis collection may be a paralectotype.

Identity. *Pimpla aethiops* Curtis.

Pimpla cossivora Curtis, 1828 : 214. Type(s) [?♀], [GREAT BRITAIN] (lost).

Identity. Unknown, the name remains a *nomen dubium*.

Stilpnus dryadum Curtis, 1832 : 388. LECTOTYPE ♀, IRELAND: Galway (NMI, Dublin), here designated [examined].

Paralectotypes 1 ♂, 1 ♀, same data as lectotype (NMI, Dublin).

The lectotype and paralectotypes are from the Haliday collection. The lectotype is in very good agreement with Curtis's description and illustration and bears a handwritten label 'dryadum'.

The lectotype lacks the tips of the antennae.

Identity. *Stilpnus dryadum* Curtis.

Therion gracilipes Curtis, 1839 : 736. Holotype ♂, [GREAT BRITAIN] (NMV, Melbourne) [examined].

The holotype lacks the tips of the hind tarsi.

Identity. *Agrypon gracilipes* (Curtis) **comb. n.** (det. I. D. Gauld).

Xylonomus gravenhorstii Curtis, 1831 : 353. LECTOTYPE ♀, [ENGLAND:] near London (NMV, Melbourne), here designated (labelled as 'type' by J. F. Perkins) [examined].

Identity. *Xorides gravenhorstii* (Curtis).

DESVIGNES, T.

There has been some confusion as to the original combinations of the species Desvignes described in 1856. However, in the preface to this work Desvignes clearly states that 'The species are arranged according to the method, used in Professor I. L. C. Gravenhorst's *Ichneumonologia Europaea*, . . .' and therefore Desvignes' 'subgenera' are here treated as genera as Gravenhorst's have been.

Anomalon capitatum Desvignes, 1856 : 104. LECTOTYPE ♂, [ENGLAND:] Yorkshire (BMNH), here designated [examined].

The lectotype lacks the tips of the hind tarsi. Although 'types' are mentioned by Morley (1915*c* : 228) only the lectotype can be found in the BMNH collection.

Identity. *Heteropelma capitatum* (Desvignes) (det. I. D. Gauld).

Anomalon interruptum Desvignes, 1856 : 106. Type(s) [?sex], [GREAT BRITAIN] (lost).

Identity. *Agrypon interruptum* (Desvignes) (det. I. D. Gauld).

Anomalon mirabile Desvignes, 1856 : 105. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

Identity. Junior synonym of *Habronyx heros* (Wesmael) (det. I. D. Gauld).

Bassus albicinctus Desvignes, 1862*a* : 218. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

Identity. Junior synonym of *Syrphophilus tricinctorius* (Thunberg) (Dasch, 1964 : 68).

Bassus compressus Desvignes, 1856 : 91. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Paralectotypes. 2 ♀, same data as lectotype (BMNH).

Identity. *Phthorima compressa* (Desvignes) (Dasch, 1964 : 218).

Bassus flavus Desvignes, 1862*a* : 219. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

Identity. Junior synonym of *Homotropus tarsatorius* (Panzer) (Dasch, 1964 : 140).

Bassus frenator Desvignes, 1862*a* : 218. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

The head and the tips of the mid tarsi are missing from the holotype.

Identity. Junior synonym of *Enizemum ornatum* (Gravenhorst) (Morley, 1911*c* : 99, as *Homocidus*).

Bassus maculatus Desvignes, 1862*a* : 216. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Identity. Junior synonym of *Sussaba dorsalis* (Holmgren) (Dasch, 1964 : 257).

Bassus picitans Desvignes, 1862*a* : 217. LECTOTYPE ♂, [GREAT BRITAIN] (BMNH), here designated [examined].

Identity. Junior synonym of *Homotropus nigritarsus* (Gravenhorst). Not a synonym of *Tymmophorus graculus* (Gravenhorst) as stated by Dasch (1964 : 78).

Bassus planus Desvignes, 1862*a* : 220. LECTOTYPE ?♂, [GREAT BRITAIN] (BMNH), here designated [examined].

The lectotype has the gaster and hind legs missing.

Identity. ?Junior synonym of *Homotropus dimidiatus* (Schrank) (Morley, 1911*c* : 102).

Bassus pulchellus Desvignes, 1862*a* : 221. LECTOTYPE ♂, [GREAT BRITAIN] (BMNH), here designated [examined].

The lectotype has the tips of the antennae and of the fore and hind tarsi missing.

Identity. Junior primary homonym of *Bassus pulchellus* Holmgren. Replacement name *Bassus desvignesii* Marshall. Junior synonym of *Homotropus tarsatorius* (Panzer) (Dasch, 1964 : 140).

Bassus rufocinctus Desvignes, 1862*a* : 215. LECTOTYPE ♂, [GREAT BRITAIN] (BMNH), here designated [examined].

The lectotype lacks the tips of the antennae.

Identity. Junior synonym of *Tymmophorus graculus* (Gravenhorst) (Dasch, 1964 : 77).

Bassus scabrosus Desvignes, 1862*a* : 217. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

The holotype has lost most of its antennae and hind tarsi.

Identity. Junior synonym of *Homotropus sundevalli* (Holmgren) (Morley, 1911*c* : 101, as *Homocidus*).

Bassus thoracicus Desvignes, 1862*a* : 219. Type(s) [?sex], [GREAT BRITAIN] (lost).

Identity. Unknown, the name remains a *nomen dubium*. Placed by Morley (1911*c* : 104) as a synonym of *Homotropus pictus* (Gravenhorst).

Campoplex henaultii Desvignes, 1856 : 98. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

The lectotype has the tip of the ovipositor broken off.

Identity. *Hyposoter henaultii* (Desvignes) **comb. n.**

Campoplex myrtillus Desvignes, 1856 : 99. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

Identity. *Dusona myrtillus* (Desvignes) (Hinz, 1957 : 86).

Campoplex placidus Desvignes, 1856 : 97. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Identity. *Hyposoter placidus* (Desvignes) **comb. n.**

Campoplex tomentosus Desvignes, 1856 : 100. Holotype ♀, [GREAT BRITAIN] (BMNH) [examined].

Identity. *Ctenopelma tomentosus* (Desvignes) **comb. n.**

Cryptus elegans Desvignes, 1856 : 57. LECTOTYPE ♂, [GREAT BRITAIN] (BMNH), here designated [examined].

The lectotype lacks the tips of the antennae and hind tarsi.

The material in the Curtis collection cannot be found (A. Neboiss, personal communication).

Identity. Junior synonym of *Thrybius leucopygus* (Gravenhorst).

Cryptus hopei Desvignes, 1856 : 58. Lectotype [?sex], [?GREAT BRITAIN] (lost), by fixation of Morley (1907 : 57).

Paralectotypes. 2 ♀, [ENGLAND:] Netley (?lost).

The type-series of this species is considered to consist of the two females referred to by Gravenhorst (1829*a* : 705) (which cannot now be found in the Hope Department collections (UM, Oxford) but may be in the Gravenhorst collection in Wrocław. They were almost certainly never in the BMNH collections as stated by Morley (1907 : 57)) together with a specimen (the lectotype) or specimens indicated by Desvignes as being in the BMNH collections. The lectotype cannot now be found in the BMNH collections.

Identity. ?*Aptesis hopei* (Desvignes) **comb. n.** See *Acanthocryptus hopei* Morley.

Cryptus ruficeps Desvignes, 1856 : 55. Type(s) [?] ♀, [GREAT BRITAIN] (lost).

Morley (1907 : 292) states 'Only a pin-hole adorns the proper position of this "species" in the British Museum, and the type appears to be lost.'.

Identity. Unknown, the name remains a *nomen dubium.*

Cryptus rufoniger Desvignes, 1856 : 58. Holotype ♀, [GREAT BRITAIN] (BMNH) [examined].

Most of the antennae, mid legs and ovipositor sheaths are missing from the holotype.

Identity. *Aritranis rufoniger* (Desvignes).

Cryptus sanguinator Desvignes, 1856 : 58. Syntypes [?] ♀, [GREAT BRITAIN] (lost).

Identity. Unknown, the name remains a *nomen dubium.* Placed by Morley (1903 : 82) as a synonym of *Barichneumon sanguinator* (Rossi).

Cryptus tumidus Desvignes, 1856 : 56. Holotype ♀, [GREAT BRITAIN] (BMNH) [examined].

The tips of the fore and mid tarsi are missing from the holotype.

Identity. Junior synonym of *Xylophrurus dispar* (Thunberg) (Morley, 1907 : 326, as a synonym of *lancifer* Gravenhorst).

Ephialtes albicinctus Desvignes, 1862*b* : 226. Holotype ♂, [?GREAT BRITAIN] (BMNH) [examined].

Identity. Junior primary homonym of *Ephialtes albicinctus* Gravenhorst. Valid name *Delomerista desvignesii* (Marshall) (Oehlke, 1967 : 33).

Ephialtes facialis Desvignes, 1862*b* : 226. LECTOTYPE ♂, [?GREAT BRITAIN] (BMNH), here designated [examined].

Identity. Junior synonym of *Lissonota catenator* (Panzer) (Perkins, 1943*a* : 260).

Ephialtes ruficollis Desvignes, 1856 : 88. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Identity. *Liotryphon ruficollis* (Desvignes) (Oehlke, 1967 : 9).

Exetastes facialis Desvignes, 1856 : 95. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

Identity. Junior synonym of *Exetastes maurus* Desvignes (Aubert, 1971 : 86).

Exetastes femorator Desvignes, 1856 : 94. Lectotype ♀, [GREAT BRITAIN] (BMNH), by designation of Townes, Momoi & Townes (1965 : 228) [examined].

Identity. *Exetastes femorator* Desvignes.

Exetastes maurus Desvignes, 1856 : 95. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH) here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The tips of the antennae and fore tarsi are missing from the lectotype.

Identity. Exetastes maurus Desvignes.

Exochus globulipes Desvignes, 1856 : 45. Lectotype ♂, [GREAT BRITAIN] (BMNH), by designation of Townes, Momoi & Townes (1965 : 353) [examined].

Townes' label is now missing from the lectotype.

Identity. Triclistus globulipes (Desvignes) (Aeschlimann, 1973 : 240).

Glypta bicornis Desvignes, 1856 : 74. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

The holotype lacks the tips of the hind tarsi.

Morley (1908 : 145) mentions 'two co-types' of this species. Unfortunately the specimen labelled by Morley as 'type' does not agree in coloration (the fourth segment of the gaster is largely red) with the original description and it is almost certainly not a type-specimen. The remaining specimen agrees with Desvignes description and is regarded as holotype of his species.

Identity. Junior primary homonym and synonym of *Glypta bicornis* Boie (Morley, 1908 : 145).

Glypta femorator Desvignes, 1856 : 73. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

The holotype has lost the tips of the hind tarsi.

Identity. Glypta femorator Desvignes.

Glypta flavipes Desvignes, 1856 : 75. LECTOTYPE ♂, [GREAT BRITAIN] (BMNH), here designated [examined].

Paralectotypes. 2 ♂, same data as lectotype (BMNH).

Identity. Junior synonym of *Glypta nigrina* Desvignes (Aubert, 1971 : 84).

Glypta lineata Desvignes, 1856 : 76. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Paralectotypes. 1 ♂, 1 ♀, same data as lectotype (BMNH).

The lectotype lacks the tips of the antennae.

Identity. Glypta lineata Desvignes.

Glypta nigrina Desvignes, 1856 : 74. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Identity. Glypta nigrina Desvignes.

Glypta pedata Desvignes, 1856 : 74. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

The tips of the fore and hind tarsi are missing from the lectotype.

Identity. Glypta pedata Desvignes.

Glypta ruficeps Desvignes, 1856 : 76. Holotype ♀, [GREAT BRITAIN] (BMNH) [examined].

Identity. Junior synonym of *Glypta nigrina* Desvignes (Aubert, 1971 : 84).

Hemiteles formosus Desvignes, *in* Smith & Desvignes, 1860 : 211. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Identity. Junior synonym of *Bathythrix fragilis* (Gravenhorst) (synonymy indicated by Morley, 1907 : 106).

Hoplismenus semirufus Desvignes, 1856 : 50. Type(s) ♀, [GREAT BRITAIN] (lost).

The specimen (?holotype) examined by Morley (1902 : 123; 1903 : 229) and Heinrich (1937 : 279) is missing from the BMNH collection (Perkins, 1953 : 115) although a pin with the following labels is present 'Type', 'B.M. TYPE HYM. 3b.1584', '7 HOPLISMENUS SEMIRUFUS', 'Hoplismenus semirufus Desv. Cat. 1856. 50. (type). = ?Platylabus Stalii Holmgr. Ichn. Suec. CM i.02.', 'semirufus', 'Dsvgns. 68–52'.

Identity. Junior synonym of *Platylabops apricus* (Gravenhorst) (Heinrich, 1937 : 279; Perkins, 1953 : 115).

Ichneumon ancipiterus Desvignes, 1856 : 19. Lectotype ♂, [Great Britain] (BMNH), by fixation of Perkins (1953 : 114) [examined].

The lectotype has the tips of the antennae, the forelegs and the tips of the hind tarsi missing.

Identity. Junior synonym of *Amblyteles palliatorius* (Gravenhorst) (Perkins, 1953 : 114).

Ichneumon binotatus Desvignes, 1856 : 23. Holotype ♂, [Great Britain] (BMNH) [examined].

Identity. Junior primary homonym of *Ichneumon binotatus* Stephens. Junior synonym of *Cratichneumon coruscator* (Linnaeus) (Perkins, 1953 : 114).

Ichneumon cambriensis Desvignes, 1867 : 130. LECTOTYPE ♂, [Wales: Dyfed,] Gellyswick (BMNH), here designated [examined].

Paralectotype ♂, same data as lectotype (BMNH).

Perkins' (1953 : 115) type fixation is not accepted since there are two males each labelled 'Type Hym. 3b.1602' in the BMNH collection. The undamaged specimen is here designated lectotype. The paralectotype has the apex of the gaster missing.

Identity. Junior synonym of *Phaeogenes stipator* Wesmael (Perkins, 1953 : 115).

Ichneumon crassorius Desvignes, 1856 : 10. Lectotype ♂, [Great Britain] (BMNH), by fixation of Perkins (1953 : 113) [examined].

Paralectotype ♀, same data as lectotype (BMNH).

It has not been possible to identify other members of Desvignes' type-series.

Identity. Junior synonym of *Ichneumon didymus* Gravenhorst (Perkins, 1953 : 113).

Ichneumon cubicularis Desvignes, 1856 : 15. LECTOTYPE ♀, [Great Britain] (BMNH), here designated [examined].

Paralectotype ♂, same data as lectotype (BMNH).

Perkins' type fixation (1953 : 114) is not accepted since BMNH 'Type Hym. 3b 1571' is male and not female as stated. The female syntype has no BMNH serial number [It is now numbered 3B.2152.] but is probably the specimen referred to by Perkins. Since this is not clear the female specimen is here formally designated as lectotype.

Identity. Junior synonym of *Spilothyrateles fabricii* (Schrank) (Perkins, 1953 : 114; Heinrich, 1967 : 600).

Ichneumon dubitatus Desvignes, 1856 : 20. Holotype ♂, [Great Britain] (BMNH) [examined].

The holotype lacks the antennae, forelegs and the tips of the mid and hind tarsi.

Identity. Junior synonym of *Amblyteles palliatorius* (Gravenhorst) (Perkins, 1953 : 114).

Ichneumon flavocinctus Desvignes, 1856 : 22. Holotype ♂, [Great Britain] (BMNH) [examined].

Although Desvignes gives a range of length this is assumed to include the specimen(s) differentiated as *Var.* 1., which are specifically excluded from the syntype series under the *International Code of Zoological Nomenclature* (1961 : Article 72(b)). Therefore the only known syntype is regarded as holotype.

Identity. Junior synonym of *Ctenichneumon panzeri* (Wesmael) (Perkins, 1953 : 114).

Ichneumon lautatorius Desvignes, 1856 : 18. Lectotype ♀, [Great Britain] (NMV, Melbourne) by fixation of Perkins (1953 : 114) [examined].

Paralectotype ♂, same data as lectotype (NMV, Melbourne).

Identity. *Ichneumon lautatorius* Desvignes (Perkins, 1953 : 114).

Ichneumon maculiventris Desvignes, 1856 : 5. Holotype ♀, [England: Hampshire, New Forest] (BMNH) [examined].

The tips of the antennae are missing from the holotype. The specimen is from Stephens' collection where it stood as *Ichneumon fasciatus* Gmelin (Stephens, 1835 : 129). Both Morley (1903 : 170) and Perkins (1953 : 107) mistakenly attributed the name *fasciatus* to Stephens and regarded the holotype of Desvignes' species as its 'type'.

Identity. Junior synonym of *Hepiopelmus leucostigmus* (Gravenhorst) (Perkins, 1953 : 113).

Ichneumon minutorius Desvignes, 1856 : 22. Lectotype ♂, [Great Britain] (BMNH), by fixation of Perkins (1953 : 114) [examined].

Paralectotypes. 7 ♂, same data as lectotype (BMNH).

Since variants are excluded from the syntype series under the *Code* (1961 : Article 72(b)) it has been necessary to determine which of the twenty specimens mentioned by Desvignes belong to his varieties 1 and 2. Sixteen specimens have been traced in the BMNH collection, of which eight (lectotype and paralectotypes) belong to the type form and seven and one, respectively, to varieties 1 and 2.

Identity. Ichneumon minutorius Desvignes (Perkins, 1953 : 114).

Ichneumon niveatus Desvignes, 1856 : 25. Lectotype ♂, [Great Britain] (BMNH), by fixation of Perkins (1953 : 114) [examined].

Paralectotypes. 12 ♂, same data as lectotype (BMNH).

The lectotype has the antennae and most of the hind tarsi missing.

Identity. Junior synonym of *Oresbius arridens* (Gravenhorst) **comb. n.** (Perkins, 1953 : 114; Townes & Gupta, 1962 : 131; Townes, 1970*a* : 131).

Ichneumon obator Desvignes, 1856 : 5. Lectotype ♂, [Great Britain] (BMNH), by fixation of Perkins (1953 : 113) [examined].

There are four further males (1 ex coll. J. F. Stephens, 3 ex coll. Desvignes) in the BMNH collection which may be paralectotypes of this species.

Identity. Platylabus obator (Desvignes) (Perkins, 1953 : 113).

Ichneumon paludator Desvignes, 1854 : 44. Lectotype ♀, [England: London,] Hammersmith Marshes (BMNH), by fixation of Perkins (1953 : 115) [examined].

Identity. Chasmias paludator (Desvignes) (Perkins, 1953 : 115).

Ichneumon relucens Desvignes, 1856 : 11. Holotype ♀, [Great Britain] (BMNH) [examined].

Identity. Junior synonym of *Diphyus indocilis* (Wesmael) (Perkins, 1953 : 113; Townes, Momoi & Townes, 1965 : 490).

Ichneumon rubedinis Desvignes, 1856 : 29. LECTOTYPE ♀, [Great Britain] (BMNH), here designated [examined].

Paralectotypes. 2 ♀, same data as lectotype (BMNH).

Since there are three specimens labelled with the serial number 'BM Cotype HYM 3b.1569' it is not possible to ascertain which one Perkins (1953 : 115) intended to fix as type. A lectotype is therefore designated here.

Identity. Junior synonym of *Ichneumon walkeri* Wesmael (Perkins, 1953 : 115).

Lampronota frontalis Desvignes, 1856 : 78. LECTOTYPE ♂, [Great Britain] (BMNH), here designated [examined].

Paralectotypes. 3 ♂, same data as lectotype (BMNH).

Of the four syntypes (Morley, 1908 : 215) the specimen previously bearing a BMNH 'type' label was not selected as lectotype because of its poor condition.

Identity. Lissonota frontalis (Desvignes).

Lampronota fulvipes Desvignes, 1856 : 78. LECTOTYPE ♀, [Great Britain] (BMNH), here designated [examined].

Paralectotypes. 3 ♂, 2 ♀, same data as lectotype (BMNH).

Identity. Lissonota fulvipes (Desvignes).

Lampronota notabilis Desvignes, 1856 : 79. Holotype ♂, [Great Britain] (BMNH) [examined].

The holotype is in poor condition and lacks most of the antennae, fore tarsi, the tips of the mid tarsi and all of the hindlegs except the left coxa.

Identity. Leptacoenites notabilis (Desvignes) **comb. n.**

Lampronota semirufa Desvignes, 1856 : 81. Holotype ♀, [Great Britain] (BMNH) [examined].

Desvignes' range of length ('3–4 lines') is presumed to include his var. 1 and therefore the only known type-specimen is regarded as holotype.

Identity. *Lissonota semirufa* (Desvignes).

Lampronota varipes Desvignes, 1856 : 81. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The lectotype lacks the tips of the hind tarsi.

Identity. *Lissonota varipes* (Desvignes).

Mesoleptus undecimnotatus Desvignes, 1856 : 33. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

The holotype lacks the tips of the antennae and hind tarsi.

Identity. Junior synonym of *Mesoleptidea cingulatus* (Gravenhorst) (Morley, 1911*c* : 227, as *Mesoleptus*).

Phytodietus obscurus Desvignes, 1856 : 69. Lectotype ♀, [GREAT BRITAIN] (BMNH), by fixation of Kerrich (1962 : 51) [examined].

Unfortunately the other specimens from Desvignes' type-series cannot be identified with certainty.

Identity. *Phytodietus obscurus* Desvignes (Kerrich, 1962 : 50).

Phytodietus ornatus Desvignes, 1856 : 69. Holotype ♀, [GREAT BRITAIN] (BMNH) [examined].

Identity. *Phytodietus ornatus* Desvignes.

Pimpla opacellata Desvignes, 1868 : 174. Holotype ♀, [GREAT BRITAIN] (BMNH) [examined].

Identity. Junior synonym of *Pimpla turionellae* (Linnaeus) (Perkins, 1941 : 645).

Tryphon bimaculatus Desvignes, 1856 : 43. Holotype ♂, [GREAT BRITAIN] (BMNH) [examined].

Identity. Junior synonym of *Synodites notatus* (Gravenhorst) (Morley, 1911*c* : 250, as *Euryproctus*).

Tryphon scoticus Desvignes, 1856 : 41. Lectotype ♂, [GREAT BRITAIN] (BMNH), by fixation of Morley (1911*c* : 271) [examined].

The lectotype lacks the tips of the mid tarsi.

Identity. Junior synonym of *Rhorus mesoxanthus* (Gravenhorst) (Morley, 1911*c* : 270, as *Ctenopelma*).

Tryphon ustulatus Desvignes, 1856 : 38. Holotype ♀, [GREAT BRITAIN] (BMNH) [examined].

The holotype lacks most of the hind tarsi.

Identity. *Xenoschesis ustulatus* (Desvignes) **comb. n.**

Xorides scutellaris Desvignes, 1856 : 113. LECTOTYPE ♀, [GREAT BRITAIN] (BMNH), here designated [examined].

Paralectotypes. 2 ♂, 2 ♀, same data as lectotype (BMNH).

The lectotype lacks the tips of the antennae.

As far as can be ascertained the type-material has not previously been labelled as such although a female paralectotype (ex coll. J. F. Stephens) bears a printed label 'Compared with type'. The type-series consists of four specimens from Desvignes' collection and one female from Stephens' collection, all standing in the BMNH collection under *scutellaris* Desvignes.

Identity. *Podoschistus scutellaris* (Desvignes) (Townes, 1957 : 18).

Xylonomus rusticus Desvignes, 1856 : 112. LECTOTYPE ♀, [ENGLAND: Hereford and Worcester,] Bewdley (BMNH), here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The tips of the hind tarsi are missing from the lectotype.

Identity. *Xorides rusticus* (Desvignes) **comb. n.**

FORSTER, J. R.

Forster's collection, although said to be in the British Museum, could not be found there as early as 1802 (Marsham, 1802 : xxiii).

Ichneumon armatorius Forster, 1771 : 82. Type(s) [?sex], [ENGLAND] (lost).
Identity. *Amblyteles armatorius* (Forster). Senior synonym of *Ichneumon fasciatorius* Fabricius (Townes, Momoi & Townes, 1965 : 502).

Ichneumon atrator Forster, 1771 : 84. Type(s) [?sex], [ENGLAND] (lost).
Identity. Unknown, the name remains a *nomen dubium.* Morley (1908 : 291) lists the name as a synonym of *Exetastes cinctipes* (Retzius).

Ichneumon polyzonias Forster, 1771 : 85. Type(s) [?sex], [ENGLAND] (lost).
Identity. *Phytodietus polyzonias* (Forster) (Townes, Momoi & Townes, 1965 : 82).

Ichneumon primatorius Forster, 1771 : 81. Type(s) [?sex], [ENGLAND] (lost).
Identity. *Ichneumon primatorius* Forster. Senior synonym of *Ichneumon grossorius* Fabricius (Townes, Momoi & Townes, 1965 : 476).

Ichneumon xanthorius Forster, 1771 : 83. Type(s) [?sex], [ENGLAND] (lost).
Identity. *Ichneumon xanthorius* Forster (Townes, Momoi & Townes, 1965 : 483, as *Pterocormus*).

HALIDAY, A. H.

Haliday's collection is in the National Museum of Ireland, Dublin. It was examined by Morley (1913*b*) who labelled a number of 'types'. Since then some of Haliday's material, corresponding to his genera *Atractodes*, *Exochus*, *Ichneumon*, *Lampronota*, *Pimpla* and *Tryphon*, has been incorporated into a general collection of Ichneumonidae by A. W. Stelfox and little can now be done to identify further types in these groups. The remainder of the collection is still in Haliday's original boxes. There are very few labels but specimens are generally arranged in groups (corresponding to species) under generic names. Haliday indicated the origin of specimens by coating the heads of the pins with coloured wax and by means of small coloured labels of various shapes.

The peculiar typographical layout of Haliday's paper (1838) has lead to some confusion about the original placements of several species. Some genera and subgenera commence with a prominent central heading and others do not, for instance, on page 116 the genus *Pimpla* commences with *Pimpla senator* immediately following a list of species placed in the subgenus *Plectiscus* of *Cryptus*.

Atractodes albovinctus Haliday, 1838 : 118. Syntypes ♂ ♀, IRELAND (lost).
Identity. Unknown, the name remains a *nomen dubium.*

Atractodes arator Haliday, 1838 : 119. Lectotype ♀, [IRELAND: Down,] Holywood (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].
Paralectotypes. 2 ♀, same data as lectotype (NMI, Dublin).
The lectotype lacks the tips of the antennae and hind tarsi.
Identity. *Atractodes arator* Haliday.

Atractodes citator Haliday, 1838 : 120. Type(s) ♀, IRELAND (lost).
Identity. Unknown, the name remains a *nomen dubium.*

Atractodes croceicornis Haliday, 1838 : 119. Syntypes ♀, IRELAND (lost).

The specimen labelled and published as 'type' by Morley (1913*b* : 262) is mounted on a pin with a black head, which, according to A. W. Stelfox (in ms.), indicates that it is not British [or Irish] and therefore cannot be one of the syntypes.

Identity. *Atractodes croceicornis* Haliday.

Atractodes cultellator Haliday, 1838 : 120. Holotype ♀, [IRELAND: Down,] Holywood (NMI, Dublin) [examined].

Identity. *Atractodes cultellator* Haliday.

Atractodes dionaeus Haliday, 1838 : 118. Syntypes ♀ ♂, IRELAND and ENGLAND (lost).

Identity. Unknown, the name remains a *nomen dubium.*

Atractodes exilis Haliday, 1838 : 119. LECTOTYPE ♀, [BRITISH ISLES] (NMI, Dublin), here designated [examined].

The male labelled as 'type' by Morley is not considered to be a syntype. There is no reason to suppose, as Morley did (1913*b* : 262), that Haliday 'transposed' the sexes in this species.

Identity. *Atractodes exilis* Haliday.

Atractodes fumatus Haliday, 1838 : 119. Lectotype ♀, [BRITISH ISLES] (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].

Identity. ? Junior synonym of *Atractodes bicolor* Gravenhorst (Morley, 1907 : 247).

Atractodes incessor Haliday, 1838 : 118. Lectotype ♀, [BRITISH ISLES] (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].

The lectotype lacks the tips of the antennae.

Identity. ? Junior synonym of *Mesoleptus laevigatus* (Gravenhorst) (Morley, 1913*b* : 262, as *Exolytus*).

Atractodes piceicornis Haliday, 1838 : 119. Type(s) ♀, [IRELAND: Galway,] Eyrecourt (lost).

Identity. Unknown, the name remains a *nomen dubium.*

Atractodes properator Haliday, 1838 : 120. LECTOTYPE ♀, [?] ENGLAND (NMI, Dublin), here designated (labelled as 'type' by Morley) [examined].

Identity. Junior synonym of *Oxytorus luridator* (Gravenhorst) (Morley, 1913*b* : 262, as *Callidiotes*).

Atractodes salius Haliday, 1838 : 119. Syntypes ♀, [IRELAND: Galway,] Eyrecourt (lost).

Identity. Unknown, the name remains a *nomen dubium.*

Atractodes scrutator Haliday, 1838 : 118. Lectotype ♀, IRELAND (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].

Identity. ? Junior synonym of *Mesoleptus laevigatus* (Gravenhorst) (Morley, 1913*b* : 262, as *Exolytus*).

Atractodes vestalis Haliday, 1838 : 118. Lectotype ♀, [BRITISH ISLES] (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].

Identity. ? Junior synonym of *Atractodes tenebricosus* (Gravenhorst) (Morley, 1913*b* : 262).

Bassus laricis Haliday, 1838 : 117. Type(s) ♀, [IRELAND: Down,] Holywood (lost).

Identity. ? *Stenomacrus laricis* (Haliday). There are specimens under this name in the BMNH collection.

Bassus serricornis Haliday, 1838 : 117. Lectotype ♀, [IRELAND:] Wicklow (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].

Paralectotype ♀, same data as lectotype (NMI, Dublin).

Identity. *Euceros serricornis* (Haliday) (Morley, 1913*b* : 262).

Cryptus (Mesochorus) arenarius Haliday, 1838 : 115. LECTOTYPE ♀, [IRELAND:] Dublin, Portmarnock (NMI, Dublin), here designated [examined].

Paralectotype ♂, same data as lectotype (NMI, Dublin).

The two syntypes were standing in the Haliday collection under *Mesochorus* together with other more or less discrete groups of specimens. They agree well with Haliday's description and are labelled 'Pt Mk' on the underside of their mounts.

Identity. *Mesochorus arenarius* (Haliday).

Cryptus (Mesochorus) atricilla Haliday, 1838 : 114. Syntypes ♂ ♀, [IRELAND: Down,] Holywood (lost).

Identity. ?*Cidaphus atricilla* (Haliday) **comb. n.** There are specimens under this name in the BMNH collection.

Cryptus (Clepticus) comes Haliday, 1838 : 116. LECTOTYPE ♀, [BRITISH ISLES] (NMI, Dublin), here designated [examined].

Paralectotypes. 2 ♀, same data as lectotype (NMI, Dublin).

The groups of specimens representing the species of *Clepticus* (*comes*, *paganus*, *praetor* and *socius*) were tentatively labelled by J. F. Perkins. Although there is no other labelling these specimens are considered to be the syntype series of the species (except *socius*).

Identity. *Proclitus comes* (Haliday) (Morley, 1915*c* : 15).

Cryptus (Mesochorus) complanatus Haliday, 1838 : 114. LECTOTYPE ♀, ENGLAND (NMI, Dublin), here designated [examined].

The lectotype was standing in the Haliday collection under *Mesochorus* together with two other specimens (one labelled *splendidulus*) which are not considered as paralectotypes. The lectotype agrees in all details with Haliday's description and is labelled '3450' on the underside of the mount.

Identity. *Stictopisthus complanatus* (Haliday) (Townes, Momoi & Townes, 1965 : 345).

Cryptus (Helictes) cruentatus Haliday, 1838 : 115. Lectotype ♀, IRELAND (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].

Identity. ? Junior synonym of *Megastylus cruentator* Schiødte (Morley, 1913*b* : 262).

Cryptus (Mesochorus) fulgurans Haliday, 1838 : 114. Lectotype ♀, [IRELAND: Down,] Holywood (NMI, Dublin), be fixation of Morley (1913*b* : 261) [examined].

Paralectotypes. 3 ♂, same data as lectotype (NMI, Dublin).

Identity. ? Junior synonym and junior secondary homonym of *Mesochorus fulgurans* Curtis.

Cryptus (Helictes) fulvicornis Haliday, 1838 : 115. LECTOTYPE ♀, IRELAND (NMI, Dublin), here designated [examined].

Paralectotypes. 3 ♀, same data as lectotype (NMI, Dublin).

The lectotype and paralectotypes are the four specimens referred to by Morley (1913*b* : 261).

Identity. ? Junior synonym of *Helictes erythrostoma* (Gmelin) (Morley, 1913*b* : 261).

Cryptus (Clepticus) paganus Haliday, 1838 : 116. LECTOTYPE ♀, [IRELAND: Galway,] Eyrecourt (NMI, Dublin), here designated [examined].

Paralectotype ♀, same data as lectotype (NMI, Dublin).

See note under *Cryptus* (*Clepticus*) *comes* Haliday.

Identity. *Proclitus paganus* (Haliday) (Morley, 1915*c* : 16).

Cryptus (Clepticus) praetor Haliday, 1838 : 116. LECTOTYPE ♀, IRELAND (NMI, Dublin), here designated [examined].

Paralectotypes. 6 ♀, 2 ♂, same data as lectotype (NMI, Dublin).

See note under *Cryptus* (*Clepticus*) *comes* Haliday.

Identity. *Proclitus praetor* (Haliday) (Morley, 1915*c* : 14).

Cryptus (Clepticus) socius Haliday, 1838 : 116. Type(s) ♀, [BRITISH ISLES] (lost).

See note under *Cryptus* (*Clepticus*) *comes* Haliday. The two specimens labelled 'socius ?' by J. F. Perkins do not agree with the original description and do not belong to the genus *Proclitus*. They are not considered to be syntypes of *socius*.

Identity. Unknown, the name remains a *nomen dubium*.

Cryptus (Mesochorus) sylvarum Haliday, 1838 : 114. LECTOTYPE ♀, IRELAND (NMI, Dublin), here designated [examined].

Paralectotype ♀, same data as lectotype (NMI, Dublin).

The specimen labelled 'sylvarum' by Haliday and referred to by Morley (1913*b* : 261) as the 'type' agrees in colour with Haliday's '*var.*' and therefore cannot be considered as a syntype of the nominal species. Together with this specimen there were five others, of which one female on a green-headed pin and agreeing with the original description is here designated as lectotype. A further female is considered as a paralectotype.

Identity. ? Junior synonym and junior secondary homonym of *Mesochorus sylvarum* Curtis.

Cryptus (Helictes) varius Haliday, 1838 : 115. Type(s) ♂, [IRELAND: Dublin,] Portmarnock (lost).

Identity. Unknown, the name remains a *nomen dubium*.

Exochus antiquus Haliday, 1838 : 113. Type(s) ♂, [IRELAND: Down,] Holywood (lost).

Morley (1913*b* : 261) could not find specimens fitting this description amongst Haliday's material.

Identity. Unknown, the name remains a *nomen dubium* (Aeschlimann, 1973 : 224).

Exochus lictor Haliday, 1838 : 113. Holotype ♀, ENGLAND: Isle of Wight (NMI, Dublin) [examined].

Identity. *Exochus lictor* Haliday.

Exochus pectoralis Haliday, 1838 : 113. ? Holotype ♂, [IRELAND:] Galway, Eyrecourt (NMI, Dublin) [examined].

As stated by Morley (1913*b* : 261) this specimen has the face entirely yellow and may not be the type.

Identity. *Exochus pectoralis* Haliday.

Exochus talpa Haliday, 1838 : 113. Lectotype ♀, IRELAND (NMI, Dublin), by fixation of Morley (1913*b* : 261) [examined].

Identity. *Chorinaeus talpa* (Haliday) (Townes, Momoi & Townes, 1965 : 347).

Ichneumon phaleratus Haliday, 1838 : 112. Syntypes ♂ ♀, IRELAND (lost).

In the Haliday collection there is a specimen (*Pristiceros infractorius* (Linnaeus), ♀) labelled as 'type' of *phaleratus* by Morley. However, the specimen is mounted on a pin with a pink head which, according to A. W. Stelfox (in ms.), indicates that it is not Irish and therefore cannot be one of the syntypes.

Identity. Junior synonym of *Pristiceros infractorius* (Linnaeus) (but see note above).

Lampronota denticornis Haliday, 1838 : 121. Lectotype ♀, IRELAND (NMI, Dublin), by fixation of Morley (1913*b* : 263) [examined].

Identity. ? Junior synonym of *Cylloceria accusator* (Fabricius) (Morley, 1913*b* : 263, as *Lampronota*).

Lampronota fracticornis Haliday, 1838 : 121. LECTOTYPE ♀, SCOTLAND (NMI, Dublin), here designated [examined].

Paralectotypes. 2 ♀, SCOTLAND; 2 ♀, 2 ♂, ENGLAND (NMI, Dublin).

The lectotype lacks the tips of the antennae and hind tarsi.

Identity. ? Junior synonym of *Cylloceria melancholica* (Gravenhorst) (Morley, 1913*b* : 263, as *Lampronota*).

Periope auscultator Haliday, 1838 : 114. Holotype ♀, IRELAND: [Galway,] Eyrecourt (NMI, Dublin) [examined].

Identity. *Periope auscultator* Haliday.

Pimpla (Acrodactyla) degener Haliday, 1838 : 117. Lectotype ♀, [BRITISH ISLES] (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].

Identity. *Acrodactyla degener* (Haliday).

Pimpla (Acrodactyla) madida Haliday, 1838 : 117. Lectotype ♀, [BRITISH ISLES] (NMI, Dublin), by fixation of Morley (1913*b* : 262) [examined].

The specimen has been dismembered and the parts glued to a piece of card. The thorax and propodeum are missing.

Identity. *Acrodactyla madida* (Haliday) (Oehlke, 1967 : 22).

Pimpla phoenicea Haliday, 1838 : 116. Syntypes ♂ ♀, [BRITISH ISLES] (lost).

Identity. ? Junior synonym of *Zatypota percontatorius* (Müller) (Aubert, 1969*a* : 77).

Pimpla senator Haliday, 1838 : 116. Type(s) ♀, [BRITISH ISLES] (lost).

Identity. ? Junior synonym of *Perithous mediator* (Fabricius) (Oehlke, 1967 : 35).

Porizon linguarius Haliday, 1838 : 117. LECTOTYPE ♀, ENGLAND (NMI, Dublin), here designated [examined].

? Paralectotype ♀, ENGLAND: Isle of Wight (NMI, Dublin).

The lectotype and paralectotype were standing under *Porizon* in Haliday's collection and are the only specimens which agree in all details with the description. The lectotype is labelled '2397' on the underside of the mount. The ? paralectotype is labelled 'June I W' [= Isle of Wight] on the underside of the mount but since Haliday did not include this information with the description the specimen is only tentatively regarded as a syntype.

Identity. *Heterocola linguarius* (Haliday) **comb. n.**

Tryphon (Cteniscus) aurifluus Haliday, 1838 : 113. Lectotype ♀, IRELAND (NMI, Dublin), by designation of Kerrich (1952 : 449) (as 'holotype') [examined].

Paralectotype ♀, same data as lectotype (NMI, Dublin).

Other paralectotypes (see Kerrich, 1952 : 449) were not examined.

Identity. *Eridolius aurifluus* (Haliday) (Townes, Momoi & Townes, 1965 : 115).

Tryphon (Cteniscus) curtisii Haliday, 1838 : 113. Holotype ♀, IRELAND (NMI, Dublin) [examined].

The holotype lacks the tips of the hind tarsi.

Identity. *Eridolius curtisii* (Haliday) **comb. n.**

Tryphon haemosternus Haliday, 1838 : 112. Syntypes ♀, IRELAND (lost).

Identity. Unknown, the name remains a *nomen dubium*. Marshall (1872 : 77) placed the species in *Polyblastus*.

Tryphon (Cteniscus) phaeorrhaeus Haliday, 1838 : 113. Holotype ♂, IRELAND (NMI, Dublin) [examined].

Identity. Junior synonym of *Exyston subnitidus* (Gravenhorst) (Kerrich, 1975 : 126).

KERRICH, G. J.

Cteniscus lineiger Thomson var. **nordstromi** Kerrich, 1952 : 426. Holotype ♀, FINLAND: Pernå (ZMU, Helsinki) [not examined].

Identity. **Syn. n.** of *Eridolius lineiger* (Thomson, 1883 : 894 (*Cteniscus*)), type ♂, [SWEDEN: Östergötland, Mjösefall] (UZI, Lund) [not examined, type information from Kerrich (1952 : 425)].

Cteniscus romani Kerrich, 1952 : 429. Holotype ♀, BELGIUM: Vivier d'Oie (IRSNB, Brussels) [examined].

Identity. *Eridolius romani* (Kerrich) **comb. n.**

Eudiaborus boreoalpinus Kerrich, 1952 : 417. Holotype ♀, SCOTLAND: Inverness-shire, Cairngorm Mountains (BMNH) [examined].

Identity. Junior synonym of *Cteniscus maculiventris* (Ashmead) (Townes, 1969 : 190).

Euryproctus holmgreni Kerrich, 1942 : 66. Holotype ♀, NORWAY: Dovre district (NR, Stockholm) [examined].

Identity. *Euryproctus holmgreni* Kerrich.

Exenterus confusus Kerrich, 1952 : 361. Holotype ♀, CZECHOSLOVAKIA: Kunzak (BMNH) [examined].
Identity. *Exenterus confusus* Kerrich.

Exyston cinctulus (Gravenhorst) ab. ***approximatus*** Kerrich, 1952 : 374. Holotype ♀, RUSSIA: Samara (MNHN, Paris) [not examined].
Identity. **Syn. n.** of *Exyston sponsorius* (Fabricius, 1781 : 425 (Ichneumon)), type(s) [? sex], GERMANY (lost).

Exyston montanus Kerrich, 1975 : 127. Holotype ♂, SWITZERLAND: Engadine National Park, Grupshum (MHN, Geneva) [not examined].
Identity. *Exyston montanus* Kerrich.

Panargyrops alter Kerrich, 1942 : 53. Holotype ♀, ENGLAND: Cambridgeshire, Wicken Fen (BMNH) [examined].
Identity. *Bathythrix alter* (Kerrich) **comb. n.**

Phytodietus griseanae Kerrich, 1962 : 52. Holotype ♀, SWITZERLAND: Upper Engadine (BMNH) [examined].
Identity. *Phytodietus griseanae* Kerrich.

Smicroplectrus clementi Kerrich, 1952 : 404. Holotype ♀, AUSTRIA: 'Carinth. alp.' (NR, Stockholm) [examined].
Identity. *Smicroplectrus clementi* Kerrich.

Smicroplectrus excisus Kerrich, 1952 : 398. Holotype ♀, SWEDEN: Skåne, Röstånga (BMNH) [examined].
Identity. *Smicroplectrus excisus* Kerrich.

Smicroplectrus heinrichi Kerrich, 1952 : 408. Holotype ♀, IRELAND: Co. West Mayo, Old Head (BMNH) [examined].
Identity. *Smicroplectrus heinrichi* Kerrich.

Smicroplectrus perkinsorum Kerrich, 1952 : 405. Holotype ♀, ENGLAND: Devon, Lustleigh (BMNH) [examined].
Identity. *Smicroplectrus perkinsorum* Kerrich.

Smicroplectrus trianguligena Kerrich, 1952 : 400. Holotype ♀, FRANCE: Haut-Rhin, Bollwiller (MNHN, Paris) [not examined].
Identity. Junior synonym of *Smicroplectrus quinquecinctus* (Gravenhorst) (Kerrich, 1975 : 126).

Thysiotorus thomsoni Kerrich, 1942 : 56. LECTOTYPE ♀, [SWEDEN:] Lund (UZI, Lund), here designated (selected and labelled by G. J. Kerrich) [examined].
Of the four specimens standing under the name *aereus* Gravenhorst in the Thomson collection Dr Kerrich has selected a female labelled '38.7.ii 65. Ld' as lectotype of *thomsoni*.
Identity. *Theroscopus thomsoni* (Kerrich) **comb. n.**

KIRBY, W.

Kirby's collection of bees is in the BMNH but does not include any specimens of other groups.

Ichneumon femorator Kirby, 1802 : 253. Type(s) [? sex], [ENGLAND] (lost).
Identity. Unknown, the name remains a *nomen dubium*.

LAIDLAW, W. B. R.

Lamachus pini (Bridgman) var. ***caledonicus*** Laidlaw, 1933 : 126. LECTOTYPE ♀, SCOTLAND: Fifeshire, Tentsmuir (BMNH), here designated [examined].
The paralectotype ♂ has not been located.

The lectotype has lost most of each antennal flagellum and the tips of the hind tarsi. Labels include 'Ex Lophyrus pini Bred 1931 by W. B. R. Laidlaw (Aberdeen)', 'W. B. R. Laidlaw 742 1931', 'Lamachus pini Bridg. ♀ var A. Roman det.'.

Identity. **Syn. n.** of *Lamachus pini* (Bridgman, 1882 : 156 (*Mesoleius*)), lectotype ♀, SCOTLAND (CM, Norwich) [examined and herein designated].

LEWIN, W.

Ichneumon chrysopus Lewin, 1797 : 4. Syntypes 2 [?sex], [GREAT BRITAIN] (lost).

One of the two syntypes is stated to be in the collection of William Jones. It cannot be located in the part of the Jones collection in the Hope Department (UM, Oxford).

Identity. Junior primary homonym of *Ichneumon chrysopus* Gmelin. ?Synonym of *Metopius croceicornis* Thomson (Perkins, 1936 : 83).

MARSHALL, T. A.

Marshall's collection was purchased by the BMNH from Janson in 1904. Previously it had been in the possession of Dr P. B. Mason. Marshall's original placement of the specimens cannot now be ascertained except in the cases of those bearing his handwritten cabinet labels. Morley (1915*a*) gives a list of Marshall's locality abbreviations.

Anomalon fasciatum Marshall, 1873 : 240. LECTOTYPE ♀, GREAT BRITAIN (BMNH), here designated [examined].

Paralectotypes. 1 ♂, 1 ♀ [not all ♂ as supposed by Marshall], same data as lectotype (BMNH).

Identity. Junior synonym of *Gravenhorstia picta* Boie (Morley, 1915*c* : 259).

Aptesis graviceps Marshall, 1868 : 155. LECTOTYPE ♀, [WALES: Dyfed,] near Milford Haven (BMNH), here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The wings of the lectotype are badly damaged. The two remaining paralectotypes cannot be located.

Identity. *Aptesis graviceps* Marshall.

Aptesis stenoptera Marshall, 1868 : 156. Syntype ♀, [WALES: Dyfed,] near Milford Haven (BMNH) [examined].

The only syntype that can be located in the BMNH collection consists only of parts of the antennae, legs, wings and ovipositor sheaths attached to the original card mount. It is not therefore designated as lectotype.

Identity. *Obisiphaga stenoptera* (Marshall) (Morley, 1907 : 60).

Bassus desvignesii Marshall, 1870 : 20. Replacement name for *Bassus pulchellus* Desvignes, junior primary homonym of *Bassus pulchellus* Holmgren.

Bassus hyperboreus Marshall, 1877 : 241. LECTOTYPE ♂, [NORWAY:] Spitzbergen, Wide Bay (BMNH), here designated [examined].

Paralectotypes. 2 ♂, same data as lectotype (BMNH).

The syntypes were labelled as type and cotypes. The 'type' is here designated as lectotype.

Identity. ?*Tymmophorus hyperboreus* (Marshall) **comb. n.**

Bassus peronatus Marshall, 1876 : 194. Holotype ♂ [not ♀ as stated by Marshall], [?SCOTLAND] (BMNH) [examined].

The holotype has lost the tips of the fore tarsi.

Identity. *Campodorus peronatus* (Marshall) **comb. n.** (det. H. K. Townes).

Bassus remotus Marshall, 1896 : 296. Holotype ♀, Norway: Vadsö (BMNH) [examined].
Identity. *Entypoma remotus* (Marshall) **comb. n.**

Cryptus brevipennis Marshall, 1867*a* : 190. Holotype ♀, [Wales: Dyfed,] Milford [Haven,] Freshwater Bay (BMNH) [examined].
Identity. *Agrothereutes brevipennis* (Marshall) **comb. n.**

Ephialtes desvignesii Marshall, 1870 : 20. Replacement name for *Ephialtes albicinctus* Desvignes, junior primary homonym of *Ephialtes albicinctus* Gravenhorst.

Limneria croceipes Marshall, 1876 : 194. Holotype ♀, [Scotland:] Kingussie (BMNH) [examined].

The holotype has lost the tips of the antennae.

Cameron (1876 : 228) corrected the type-locality which was originally given as Cadder Wilderness.

Identity. *Phobocampe croceipes* (Marshall) **comb. n.**

Mesochorus dolorosus Marshall, 1877 : 242. LECTOTYPE ♀, [Norway:] Spitzbergen, Hecla Cove (BMNH), here designated [examined].

Paralectotypes. 3 ♂ [not ♀ as stated by Marshall], same data as lectotype (BMNH).

Of the six syntypes only four are now extant in the BMNH collection and of these two were labelled 'type' [one by Morley] and two 'cotype'. The female lectotype was previously labelled 'cotype'.

Identity. *Mesochorus dolorosus* Marshall.

Mesoleius compar Marshall, 1896 : 296. Holotype ♀, Norway: Bodö (BMNH) [examined].

The holotype has the tips of the antennae, the gaster and the hind legs (except the left coxa) missing.

Identity. ? *Mesoleius compar* Marshall (det. H. K. Townes).

Mesolius arctophylax Marshall, 1877 : 241. LECTOTYPE ♀, [Norway:] Spitzbergen, Wide Bay (BMNH), here designated [examined] [*Mesolius* is a lapsus for *Mesoleius*].

Paralectotypes. 1 ♂, 1 ♀ [not all ♀ as stated by Marshall], same data as lectotype (BMNH).

The lectotype has the tips of the hind tarsi missing.

The three extant syntypes in the BMNH collection were labelled as type and cotypes. The 'type' is here designated as lectotype.

Identity. *Hypamblys arctophylax* (Marshall) **comb. n.**

Mesostenus maurus Marshall, 1873 : 241. Lectotype ♀, [England:] near Carlisle (BMNH), by fixation of Perkins (1953 : 117) [examined].

Paralectotypes. 4 ♀, same data as lectotype (BMNH).

The antennae and the tips of the fore and hind tarsi are missing from the lectotype.

Identity. Junior synonym of *Hoplismenus bidentatus* (Gmelin) (Perkins, 1953 : 117).

Metopius peltator Marshall, 1874 : 130. Holotype ♂ [not ♀ as stated by Marshall], [Wales: Dyfed,] near Milford Haven (BMNH) [examined].
Identity. Junior synonym of *Metopius anxius* Wesmael (Perkins, 1936 : 85).

Nyxeophilus corsicus Marshall, 1901 : 291. Holotype ♀, Corsica: Forest of Monte d'Oro (BMNH, on permanent loan from CMAG, Plymouth) [examined].

The holotype lacks the tips of the hind tarsi.

Identity. Junior synonym of *Echthrus reluctator* (Linnaeus). Synonymy indicated by Roman (1932 : 12) here confirmed.

Oresbius castaneus Marshall, 1867*b* : 194. Syntypes 2 ♀, [Scotland: Perthshire;] near Loch Rannoch, Garbhavel (lost).
Identity. *Oresbius castaneus* Marshall.

Orthocentrus reptilis Marshall, 1877 : 242. LECTOTYPE ♀, [Norway:] Spitzbergen, Loom Bay (BMNH), here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The lectotype is in poor condition and has the antennae and fore and mid legs damaged.
Identity. *Stenomacrus reptilis* (Marshall) (Morley, 1921 : 54).

Phygadeuon errator Marshall, 1868 : 154. Holotype ♀, [ENGLAND:] London district (BMNH) [examined].
Identity. *Polytribax errator* (Marshall) **comb. n.**

Phygadeuon scoticus Marshall, 1868 : 154. LECTOTYPE ♀, [SCOTLAND:] Black Wood of Rannoch (BMNH), here designated [examined].
Paralectotype ♀, same data as lectotype (BMNH).
Identity. *Aptesis scoticus* (Marshall) **comb. n.**

MORLEY, C.

Morley's collection of over 6000 specimens was acquired by the BMNH in 1952. It included Capron's collection and material from a number of other collectors. The material has been incorporated into the BMNH collection but Morley's placement is shown on the reverse of the printed label 'British Isles C. Morley Coll. 1952–159' attached to each specimen. Morley often did not mention a 'type' in his original descriptions but he usually labelled type-material as 'type' and 'co-types' or as 'type ♂', 'type ♀' and 'co-types'.

Although volume 5 of Morley's *Ichneumonologia Britannica* is dated 1914, it was published in 1915. The publishers notice to subscribers was sent out in July 1915 and the BMNH copy is stamped '7 AUG. 1915'. Advertisements for the volume as 'Now ready' appear on the covers of the *Entomologist's mon. Mag.* for August 1915 and the *Entomologist* for September 1915.

Acanthocryptus hopei Morley, 1907 : 56. Syntypes 1 ♀, [ENGLAND:] Suffolk, Barton Mills (BMNH) [examined]; 1 ♀, [ENGLAND:] near Ipswich, Bramford Marshes (BMNH) [examined]. Further syntypes have not been located. See *Cryptus hopei* Desvignes.
Identity. ?Junior synonym and junior secondary homonym of *Aptesis hopei* (Desvignes). Morley undoubtedly proposed this name because he considered that *Cryptus hopei* Desvignes was not available.

Aglaojoppa rex Morley *in* Wiltshire, 1935 : 4. Holotype ♂, SYRIA [=LEBANON]: Beirut (BMNH) [examined].
The holotype is in very poor condition and consists of fragments attached to a card. The host remains are preserved on a separate pin.
Identity. *Coelichneumon rex* (Morley) (placement in BMNH collection by J. F. Perkins).

Aritranis rufus Morley, 1907 : 293. Holotype ♀, [ENGLAND:] Devon, Oreston Quarry (BMNH) [examined].
Identity. *Platyrhabdus rufus* (Morley) **comb. n.**

Asphragis kolae Morley, 1933 : 80. Holotype ♂, [U.S.S.R.: Murmansk,] Svyatoi Nos, Yukanski Island (BMNH) [examined].
Identity. *Lissonota kolae* (Morley) **comb. n.**

Barichneumon planinotum Morley, 1919 : 154. LECTOTYPE ♀, ALGERIA (BMNH), here designated [examined].
Paralectotype ♀, same data as lectotype (BMNH).
Identity. *Aoplus planinotum* (Morley) (Heinrich, 1937 : 260).

Cecidonomus xylonomoides Morley, 1907 : 175. Holotype ♂, [ENGLAND:] near Ipswich, Bentley Woods (BMNH) [examined].
Identity. *Acrolyta xylonomoides* (Morley) **comb. n.**

Ctenichneumon flavocinctus (Desvignes) var. ***rufescens*** Morley, 1903 : 180. Holotype ♂, [England:] ? Surrey, Shere (BMNH) [examined].

Identity. **Syn. n.** of *Ctenichneumon panzeri* (Wesmael, 1844 : 136 (*Amblyteles*)), syntypes ♂ ♀, Belgium: Brussels (IRSNB, Brussels) [not examined].

Ctenichneumon plicatus Morley, 1903 : 172. Lectotype ♂, [England:] near Dover, Ripple Court (BMNH), by fixation of Perkins (1953 : 117) [examined].

Identity. Junior synonym of *Spilichneumon occisorius* (Fabricius) (Perkins, 1953 : 117).

Diadegma anomala Morley, 1908 : 275. Holotype ♀, [England:] Devon, Lynton (BMNH) [examined].

The holotype lacks the tips of the antennae.

Identity. Javra anomala (Morley) **comb. n.**

Dinotomus basalis Morley, 1915*b* : 67. Holotype ♂, 'Patria incog.' (BMNH) [examined].

This species is known only from the Philippines (Townes, Townes & Gupta, 1961 : 398).

Identity. Holcojoppa basalis (Morley) (Townes, Townes & Gupta, 1961 : 398).

Dinotomus spinosus Morley, 1903 : 11. Holotype ♂, [England: Hampshire,] New Forest (BMNH) [examined].

The holotype lacks the hind tarsi.

Identity. Junior synonym of *Hoplismenus bidentatus* (Gmelin) (Perkins, 1953 : 116).

Ephialtes albispiculus Morley, 1908 : 42. Holotype ♀, [England:] Bristol (BMNH) [examined].

Identity. **Syn. n.** of *Liotryphon crassisetus* (Thomson, 1877 : 743 (*Ephialtes*)), type(s) ♀, [Sweden:] Norrland (UZI, Lund) [not examined].

Ephialtes reflexus Morley, 1914 : 21. Holotype ♀, Germany (BMNH) [examined].

The holotype lacks the tips of the fore tarsi.

Identity. Junior synonym of *Dolichomitus atratus* (Rudow) (Oehlke, 1967 : 12).

Epiurus culpator Morley, 1914 : 85. LECTOTYPE ♀, [England:] Suffolk, Herringswell Fen (BMNH), here designated [examined].

Paralectotypes. 10 ♂, 3 ♀, same data as lectotype; 4 ♂, 1 ♀, [England:] Cambridgeshire, Chippenham Fen (all BMNH).

Identity. Junior synonym of *Scambus arundinator* (Fabricius) (Oehlke, 1967 : 2).

Exochus britannicus Morley, 1911*c* : 43. Holotype ♂ [not ♀ as stated by Morley], [England:] Suffolk, Tuddenham (BMNH) [examined].

Identity. Exochus britannicus Morley.

Exochus intermedius Morley, 1911*c* : 31. Holotype ♂, [England: Hampshire,] New Forest, Lyndhurst (BMNH) [examined].

The holotype lacks the tips of the antennae.

Identity. Exochus intermedius Morley.

Glyphicnemis suffolciensis Morley, 1907 : 67. LECTOTYPE ♀, [England:] Suffolk, Moulton (BMNH), here designated [examined].

Paralectotypes. 5 ♂, 6 ♀, same data as lectotype; 1 ♀, [England:] Suffolk, Farnham; 1 ♀, [England:] Yorkshire, Askern; 1 ♀, [Scotland:] Dundonald; 3 ♂, 5 ♀, *sine locus* (all BMNH).

The lectotype was labelled 'Holotype ♀' (? by Morley).

Identity. Glyphicnemis suffolciensis Morley.

Glypta suturalis Morley, 1914 : 115. LECTOTYPE ♀, Corsica (BMNH), here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The lectotype is the specimen labelled by Morley as 'type'.

Identit Apophua suturalis (Morley) **comb. n.**

Hemiteles anglicanus Morley, 1907 : 170. Holotype ♀, [ENGLAND:] Norfolk, near Diss, Roydon Fen (BMNH) [examined].

Identity. *Stiboscopus anglicanus* (Morley) **comb. n.**

Hemiteles brunneus Morley, 1907 : 143. LECTOTYPE ♀, [ENGLAND: Suffolk,] Southwold (BMNH), here designated [examined].

Paralectotype ♀, [ENGLAND : Suffolk,] Tostock (BMNH).

Identity. *Charitopes brunneus* (Morley) **comb. n.**

Homocidus emarginatus Morley, 1911*c* : 108. Holotype ♀, [SCOTLAND:] Kincardineshire, Banchory (BMNH) [examined].

Identity. Junior secondary homonym of *Saotis emarginatus* (Thomson, 1883 : 933). Replacement name here proposed: *Saotis morleyi* **nom. n.**

Homoporus niger Morley, 1906 : 422. Holotype ♂, [ENGLAND: Norfolk,] Wroxham Broad (BMNH) [examined].

Identity. Junior synonym of *Phthorima compressa* (Desvignes) (Dasch, 1964 : 218).

Homoporus reflexus Morley, 1906 : 423. Holotype ♀, [ENGLAND:] ?Surrey, Shere (BMNH) [examined].

Identity. *Homotropus reflexus* (Morley) **comb. n.**

Limnerium renominatum Morley, 1915*c* : 120. Replacement name for *Limneria distincta* Bridgman, junior primary homonym of *Limneria distincta* Provancher.

Melanomicrus elliotti Morley, 1903 : 288. Lectotype ♀, [ENGLAND:] near Ipswich, Belstead Woods (BMNH), by fixation of Perkins (1953 : 117) [examined].

The lectotype has the tips of the antennae and of the forewings missing.

Perkins (1953 : 117) inadvertently referred to this species as *Nematomicrus elliotti*.

Identity. Junior synonym of *Eriplatys ardeicollis* (Wesmael) (Perkins, 1953 : 117).

Meniscus setosus (Fourcroy) var. ***piffardi*** Morley, 1908 : 229. LECTOTYPE ♀, [ENGLAND:] Hertfordshire, Felden (BMNH), here designated [examined].

Identity. Junior synonym of *Lissonota fulvipes* (Desvignes).

Meniscus sulcator Morley, 1908 : 232. LECTOTYPE ♀, [GREAT BRITAIN:] Bromar district (BMNH), here designated [examined].

Paralectotypes. 1 ♂, 1 ♀, same data as lectotype; 2 ♀, [ENGLAND:] Cambridgeshire, Bloxworth (BMNH).

Although Morley mentions 'the type' in his description he labelled two specimens, as 'Type ♀' and 'Type ♂', making a lectotype designation necessary.

Identity. Junior synonym of *Lissonota frontalis* (Desvignes).

Mesoleius renovatus Morley, 1911*c* : 169. LECTOTYPE ♂, [ENGLAND:] Worcester (BMNH), here designated (labelled as '♂ type' by Morley) [examined].

Paralectotypes. 2 ♂, same data as lectotype (CM, Norwich).

The lectotype is covered by the remains of a growth of mould.

Identity. ?*Saotis renovatus* (Morley) **comb. n.**

Mesoleius tenthredinis Morley *in* Hewitt, 1912 : 26. LECTOTYPE ♀, [?ENGLAND: Cumbria] (BMNH), here designated [examined].

Paralectotypes. 20 ♂, 12 ♀, ? same data as lectotype (BMNH).

The lectotype lacks the tips of the hind tarsi and is covered by the remains of a fungal growth.

Identity. *Mesoleius tenthredinis* Morley.

Metopius notabilis Morley, 1912 : 79. Holotype ♂, CYPRUS (BMNH) [examined].

Identity. *Metopius notabilis* Morley.

Oedematopsis ops Morley, 1908 : 273. Holotype ♀, [ENGLAND:] ?Surrey, Shere (BMNH) [examined].

Identity. *Hybophanes ops* (Morley) **comb. n.**

Ophion brevicornis Morley, 1915*c* : 274. Holotype ♀, [England:] Suffolk, near Ipswich, Bentley Woods (BMNH) [examined].

Identity. *Ophion brevicornis* Morley.

Ophion calcaratus Morley, 1915*c* : 269. LECTOTYPE ♀, [England:] Suffolk, Tostock (BMNH), here designated (labelled by Gauld, 1974) [examined]. (See Gauld, 1976.)

Identity. Junior synonym of *Ophion slaviceki* Kriechbaumer (det. I. D. Gauld).

Ophion forticornis Morley, 1915*c* : 270. LECTOTYPE ♀, [England:] Suffolk, Felixstowe (BMNH), here designated (labelled by Gauld, 1974) [examined]. (See Gauld, 1976.)

Identity. *Ophion forticornis* Morley.

Ophion stigmaticus Morley, 1915*c* : 271. LECTOTYPE ♀, [England:] Suffolk, Bentley Woods (BMNH), here designated (labelled by Gauld, 1974) [examined]. (See Gauld, 1976.)

The tips of the hind tarsi are missing from the lectotype.

Identity. Junior synonym of *Ophion scutellaris* Thomson (det. I. D. Gauld).

Orthopelma brevicornis Morley, 1907 : 112. Holotype ♀, [England:] Cambridgeshire, Wicken Fen (BMNH) [examined].

Identity. *Orthopelma brevicornis* Morley.

Paniscus madeirensis Morley, 1913*a* : 115. Syntypes 2 ♂, 2 ♀, Madeira (BMNH) [examined].

Morley has labelled one of the specimens as 'type' although all have syntype status at present.

Identity. *Netelia madeirensis* (Morley) **comb. n.**

Pectenella latungula (Thomson) var. **deleta** Morley, 1915*c* : 174. Syntype ♂, [England:] Suffolk, near Bawdsey (BMNH) [examined].

The female syntype cannot be found in the BMNH collection at present.

Identity. ? Junior synonym of *Diadegma latungula* (Thomson).

Perilissus spilonotus (Stephens) var. **deficiens** Morley, 1933 : 80. Holotype ♀, [U.S.S.R.: Murmansk,] Svyatoi Nos, Yukanski Island (BMNH) [examined].

The holotype lacks the antennal flagellae.

Identity. ? *Neostroblia deficiens* (Morley) **comb. n.**

Phthorimus anomalus Morley, 1906 : 420. Holotype ♀, [England: Surrey,] Longcross (BMNH) [examined].

The holotype is covered by the remains of a growth of mould and the head is detached.

Identity. Junior synonym of *Scambus brevicornis* (Gravenhorst) (Oehlke, 1967 : 5).

Phygadeuon compactus Morley, 1947 : 33. Holotype ♀, [England: Suffolk,] Claydon Bridge (BMNH) [examined].

Identity. *Phygadeuon compactus* Morley.

Phygadeuon devonensis Morley, 1947 : 35. LECTOTYPE ♀, [England:] Devon, Bishops Tawton (BMNH), here designated [examined].

Paralectotype ♂, Scotland: Banchory (BMNH).

Identity. *Phygadeuon devonensis* Morley.

Phygadeuon elliotti Morley, 1947 : 35. Holotype ♀, Scotland: Perthshire, Birnam (BMNH) [examined].

Identity. *Phygadeuon elliotti* Morley.

Phygadeuon gallevensis Morley, 1947 : 35. LECTOTYPE ♀, [England: Surrey,] Godalming (BMNH), here designated (labelled by Frilli, 1967) [examined].

Paralectotypes. 1 ♂, 3 ♀, same data as lectotype (BMNH).

Identity. *Phygadeuon gallevensis* Morley.

Phygadeuon lincolniae Morley, 1947 : 33. Holotype ♀, [England:] Lincolnshire, Boston (BMNH) [examined].

Identity. *Phygadeuon lincolniae* Morley.

Phygadeuon londinensis Morley, 1947 : 29. Holotype ♂, [ENGLAND: London,] Hyde Park (BMNH) [examined].

Identity. ?*Theroscopus londinensis* (Morley) **comb. n.**

Phygadeuon notaulius Morley, 1947 : 33. Holotype ♀, [ENGLAND: Suffolk,] Bentley Woods (BMNH) [examined].

Identity. *Stiboscopus notaulius* (Morley) **comb. n.**

Phygadeuon ragensis Morley, 1947 : 33. Holotype ♀, [ENGLAND:] Leicester (BMNH) [examined].

Identity. *Phygadeuon ragensis* Morley.

Phygadeuon rubricaudus Morley, 1947 : 34. LECTOTYPE ♀, [ENGLAND:] Surrey, Shere (BMNH), here designated (labelled by Frilli, 1967) [examined].

Paralectotype ♀, same data as lectotype (BMNH).

Although Morley indicated a 'type' his two syntypes are on the same mount and therefore a lectotype designation is necessary.

Identity. *Phygadeuon rubricaudus* Morley.

Phygadeuon sudvoldensis Morley, 1947 : 34. Holotype ♀, [ENGLAND:] Suffolk, Southwold (BMNH) [examined].

Identity. *Phygadeuon sudvoldensis* Morley.

Phygadeuon surriensis Morley, 1947 : 34. LECTOTYPE ♀, [ENGLAND:] Surrey (BMNH), here designated (labelled by Frilli, 1967) [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The two syntypes are mounted on a single card. A gaster (probably belonging to the lectotype) is attached to the card. The gaster of the paralectotype is missing.

Identity. *Phygadeuon surriensis* Morley.

Pimpla alternans Gravenhorst var. ***spiracularis*** Morley, 1908 : 106. LECTOTYPE ♀, [ENGLAND: Suffolk,] Tostock (BMNH), here designated [examined].

Paralectotypes. 1 ♀, [ENGLAND:] Suffolk, Belstead (BMNH); 1 ♀, [ENGLAND:] Lyndhurst (BMNH); 1 ♂, [ENGLAND: Suffolk,] Brandon (BMNH); 1 ♂, [ENGLAND: Suffolk,] Assington (BMNH); 1 ♂, [ENGLAND: Yorkshire,] Doncaster (BMNH).

In the BMNH collection under *Itoplectis alternans* there were two groups of specimens from the Morley collection under the labels (in Morley's handwriting) 'alternans with round spiracles (type)' 7 specimens and 'spiracles oval = var *spiracularis* (Morl.)' 12 specimens. Of this second group of specimens six were collected after 1908 and therefore cannot be syntypes. The remaining six correspond to data given with Morley's original description and are designated as lectotype and paralectotypes. Further paralectotypes have not been located.

Identity. **Syn. n.** of *Itoplectis alternans* (Gravenhorst, 1829*c* : 201 (*Pimpla*)), lectotype ♂, [EUROPE] (ZI, Wrocław) [not examined].

Pimpla burtoni Morley, 1946 : 201. LECTOTYPE ♀, [ENGLAND: Suffolk,] Hoxne (BMNH), here designated [examined].

Paralectotype ♂, same data as lectotype (BMNH).

In the heading to the original description the generic name was printed as *Pimpia* (a typographical error).

Identity. Junior synonym of *Itoplectis melanocephala* (Gravenhorst) (Aubert, 1969*a* : 82).

Pimpla gallicola Morley, 1908 : 78. LECTOTYPE ♀, [ENGLAND:] Sussex, Hailsham (BMNH), here designated [examined].

Paralectotypes. 1 ♂, 2 ♀, same data as lectotype (BMNH).

The lectotype is mounted on a card together with 1 ♀ paralectotype and 5 sawflies and was previously labelled 'co-type'.

Identity. Junior primary homonym of *Pimpla gallicola* Giraud. Junior synonym of *Scambus vesicarius* (Ratzeburg) (Oehlke, 1967 : 7).

Pimpla hibernica Morley, 1908 : 60. LECTOTYPE ♀, IRELAND: Kilmore (BMNH), here designated [examined].

Paralectotypes. 4 ♂, 1 ♀, same data as lectotype (BMNH); 1 ♀, IRELAND: Kerry, Kenmore (BMNH).

Identity. Junior synonym of *Tromatobia variabilis* (Holmgren) (Oehlke, 1967 : 18).

Pimpla melanocephala Gravenhorst var. ***deplanata*** Morley, 1908 : 69. Holotype ♀, [ENGLAND:] Norfolk, Surlingham Marsh (BMNH) [examined].

Identity. ? Junior synonym of *Scambus nitidus* (Brauns).

Pimpla robusta Morley, 1908 : 65. Lectotype ♀, [ENGLAND: Hampshire,] Lyndhurst (BMNH), by designation of Townes, Momoi & Townes (1965 : 11) [examined].

Paralectotypes. 2 ♀, [ENGLAND: Hampshire,] Matley Bog (BMNH); 2 ♀, [ENGLAND:] Suffolk, Barnby Broad (BMNH); 3 ♀, [ENGLAND:] Suffolk, Foxhall (BMNH); 1 ♀, [ENGLAND:] Ripley (BMNH); 2 ♀, [ENGLAND: Suffolk,] Finborough Park *and/or* Tostock (BMNH).

Identity. Junior primary homonym of *Pimpla robusta* Rudow. Junior synonym of *Scambus nigricans* (Thomson) (Oehlke, 1967 : 4).

Pimpla turionellae (Linnaeus) var. ***rufistigma*** Morley, 1908 : 102. LECTOTYPE ♀, [ENGLAND:] Suffolk, Bungay (BMNH), here designated [examined].

Paralectotypes. 1 ♀, [ENGLAND:] Surrey, Shere (BMNH); 1 ♀, [ENGLAND:] Hertfordshire, Felden (BMNH).

The three syntypes were standing in the BMNH collection under Morley's label (which is now attached to the lectotype) 'var. rufistigma var. nov.'. The paralectotypes are not conspecific with the lectotype and belong to *Pimpla aquilonia* Cresson (*flavicoxis* Thomson).

Identity. **Syn. n.** of *Pimpla contemplator* (Müller, 1776 : 158 (*Ichneumon*)), type(s) [? sex] (lost).

Pimpla turionellae (Linnaeus) var. ***rufitibia*** Morley, 1908 : 101. LECTOTYPE ♀, [ENGLAND:] near Norwich, Earlham (BMNH), here designated [examined].

Paralectotypes. 1 ♀, [ENGLAND:] Hastings (BMNH); 1 ♀, [ENGLAND: Suffolk,] Claydon Bridge (BMNH); 1 ♀, [ENGLAND: Suffolk,] Barham Oak Wood (BMNH).

The four syntypes were standing in the BMNH collection under Morley's label (which is now attached to the lectotype) 'var. rufitibia var. nov.'.

Identity. **Syn. n.** of *Pimpla contemplator* (Müller, 1776 : 158 (*Ichneumon*)), type(s) [? sex] (lost).

Pimpla ulicicida Morley, 1911*a* : 161. LECTOTYPE ♀, [ENGLAND: Hampshire,] near Brockenhurst (BMNH), here designated [examined].

Paralectotypes. 1 ♀, 5 ♂, same data as lectotype (BMNH).

Identity. Junior synonym of *Scambus elegans* (Woldstedt) (Oehlke, 1967 : 5).

Proboloides glabratus Morley, 1903 : 161. Lectotype ♀, [NEW ZEALAND, not 'British' as stated by Morley] (BMNH), by designation of Townes, Townes & Gupta (1961 : 372) [examined].

Paralectotypes. 3 ♂, same data as lectotype (BMNH).

Identity. Junior synonym of *Degithina sollicitoria* (Fabricius) (Townes, Townes & Gupta, 1961 : 372).

Proboloides maculatus Morley, 1903 : 161. Lectotype ♀, [NEW ZEALAND, not 'British' as stated by Morley] (BMNH), by designation of Townes, Townes & Gupta (1961 : 371) [examined].

Paralectotype [?] ♂, same data as lectotype (BMNH).

Much of the underside of the gaster in both the lectotype and paralectotype has been eaten away by beetles. In addition the tips of the hind tarsi are missing from the lectotype.

Identity. Junior synonym of *Degithina decepta* (Smith) (Townes, Townes & Gupta, 1961 : 371).

Promethus dodsi Morley, 1906 : 421. Holotype ♀, [ENGLAND:] ? Surrey, (BMNH) [examined].

Identity. *Promethes dodsi* Morley.

Thersilochus orchesiae Morley, 1915*c* : 51. Lectotype ♀, [ENGLAND: Suffolk,] near Ipswich, Foxhall (BMNH), by designation of Horstmann (1971 : 90) [examined].

Paralectotypes. 1 ♂, 1 ♀, 2 ?sex, same data as lectotype (BMNH).

The lectotype lacks most of the antennae and mid legs.

Identity. Junior synonym of *Probles gilvipes* (Gravenhorst) (Horstmann, 1971 : 90).

Thymaris fenestralis Morley, 1908 : 277. LECTOTYPE ♀, [ENGLAND:] Suffolk, Monks Soham (BMNH), here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

Identity. *Thymaris fenestralis* Morley.

Tryphon elongator (Fabricius) var. **elliotti** Morley, 1911*c* : 180. LECTOTYPE ♀, [SCOTLAND:] Inverness (BMNH), here designated [examined].

Paralectotypes. 1 ♂, 2 ♀, same data as lectotype (BMNH).

The lectotype is mounted on the same card as 1 ♂ and 1 ♀ paralectotypes.

Identity. ?Junior synonym of *Cosmoconus elongator* (Fabricius).

PARFITT, E.

After his death in 1893 Parfitt's insect collections were bought by Vicary of Exeter and later given to C. G. Vicary of Newton Abbot (Sherborn, 1940). The collections eventually went to Torquay Natural History Society Museum but were badly damaged by beetles and the last remnants were discarded in 1952. Nothing now remains (N. Harris, personal communication).

Hemiteles gyrini Parfitt, 1881 : 79. Syntypes 1 ♂, [? number] ♀, [ENGLAND: Devon,] Exeter Canal (destroyed).

Identity. Unknown, the name remains a *nomen dubium*. A female under this name in the Bignell collection fits the description of *Hemiteles persector* Parfitt (this specimen is now in the BMNH on permanent loan from CMAG, Plymouth).

Hemiteles litoreus Parfitt, 1882*c* : 272. Syntypes ♂ ♀, [ENGLAND: Devon,] near Woodbury Road Station *and* Exminster Marshes (destroyed).

Identity. Unknown, the name remains a *nomen dubium*. Given by Morley (1907 : 161) as a synonym of '*Hemiteles*' *oxyphymus* Gravenhorst. Morley's specimens of *oxyphymus* were, however, misidentified (Kerrich, 1935 : 40).

Hemiteles persector Parfitt, 1882*a* : 184. Syntypes ♀, [ENGLAND: Devon,] Exeter Canal (destroyed).

Identity. *Pleurogyrus persector* (Parfitt) (Townes, 1970*a* : 45). There are specimens under this name in the BMNH collection.

Limneria affinis Parfitt, 1882*b* : 252. Syntypes 4 ♂ and ♀, [ENGLAND: Devon,] near Exeter *and* Lydford (destroyed).

Identity. Unknown, the name remains a *nomen dubium*.

Mesoleius brachyacanthus Parfitt, 1881 : 78. Syntypes 2 ♂, [ENGLAND: Devon,] near Exeter (destroyed).

Identity. Unknown, the name remains a *nomen dubium*.

Mesoleius elegans Parfitt, 1882*c* : 273. LECTOTYPE ♀, [ENGLAND:] near Norwich (CM, Norwich), here designated [examined].

The lectotype was standing in the Bridgman collection under 'Mesoleius elegans Parf.'. No specimens were found in the Bignell collection (CMAG, Plymouth).

Identity. I cannot place this species. It belongs in the Mesoleiini.

Polyblastus bridgmani Parfitt, 1882*b* : 251. Type(s) [?sex], [ENGLAND: Devon,] near Exeter (destroyed).

Identity. Unknown, the name remains a *nomen dubium*.

PERKINS, J. F.

Adelognathus (Adelognathus) britannicus Perkins, 1943*b* : 102. Holotype ♀, ENGLAND: Gloucestershire, Staunton, High Meadow Woods (BMNH) [examined].
Identity. Adelognathus britannicus Perkins.

Adelognathus (Adelognathus) granulatus Perkins, 1943*b* : 110. Holotype ♀, SWEDEN: Skåne, Skåralid (BMNH) [examined].
Identity. Adelognathus granulatus Perkins.

Amblyteles (Triptognathus) propinquus Perkins, 1953 : 152. Holotype ♂, ENGLAND: Cambridgeshire, Croydon (BMNH) [examined].
Identity. Triptognathus propinquus (Perkins) **comb. n.**

Barichneumon basalis Perkins, 1960 : 157. Holotype ♂, ENGLAND: Hampshire, New Forest (BMNH) [examined].
Identity. Barichneumon basalis Perkins.

Barichneumon maculicauda Perkins, 1953 : 136. Replacement name for *Ichneumon perscrutator* Wesmael, junior primary homonym of *Ichneumon perscrutator* Thunberg.

Coelichneumon purpurissatus Perkins, 1953 : 138. Replacement name for *Ichneumon nigrator* Fabricius, junior primary homonym of *Ichneumon nigrator* Müller.

Cyclolabus dubiosus Perkins, 1953 : 156. Holotype ♀, ENGLAND: Essex, Colchester (BMNH) [examined].
Identity. Cyclolabus dubiosus Perkins.

Dicaelotus fitchi Perkins, 1953 : 158. Holotype ♀, BRITISH ISLES (BMNH) [examined].
Identity. Dicaelotus fitchi Perkins.

Dicaelotus suspectus Perkins, 1953 : 160. Holotype ♀, ENGLAND: Gloucestershire, Staunton, High Meadow Woods [not Suffolk, Bentley Woods as stated by Perkins] (BMNH) [examined].
Perkins inadvertently transposed the locality data for the holotypes of this species and *Epitomus proximus* Perkins.
Identity. Dicaelotus suspectus Perkins.

Echthrolaricobius paradoxus Perkins, 1958*a* : 147. Holotype ♀, SWITZERLAND: near Zürich, Seegräben (BMNH) [examined].
Identity. Earobia paradoxus (Perkins) (Townes, 1971 : 27).

Ephialtes curticornis Perkins, 1943*a* : 258. Replacement name for *Ephialtes brevicornis* Tschek, junior secondary homonym of *Pimpla brevicornis* Gravenhorst.

Ephialtes cydiae Perkins, 1942*b* : 172. Holotype ♀, FRANCE: Var, Lavandou (BMNH) [examined].
Identity. Liotryphon cydiae (Perkins) (Oehlke, 1967 : 10).

Ephialtes diversicostae Perkins, 1943*a* : 256. LECTOTYPE ♀, [? SWEDEN] (UZI, Lund), here designated [examined].
Paralectotypes. 4 ♀, [? localities] (UZI, Lund).
Of seven specimens standing under the name *tuberculatus* in the Thomson collection a female labelled '*tuberculatus*' has been selected as lectotype. Two specimens labelled 'Var' are not considered as syntypes.
Identity. Dolichomitus diversicostae (Perkins) (Oehlke, 1967: 12).

Ephialtes (Scambus) eucosmidarum Perkins, 1957*a* : 1. Holotype ♀, SCOTLAND: Perthshire, Rannoch (BMNH) [examined].
Identity. Scambus eucosmidarum (Perkins) (Oehlke, 1967 : 6).

Ephialtes (Scambus) phragmitidis Perkins, 1957*a* : 2. Holotype ♀, ENGLAND: Cambridgeshire, Wicken, Sedge Fen (BMNH) [examined].
Identity. Scambus phragmitidis (Perkins) (Oehlke, 1967 : 3).

Ephialtes subglabratus Perkins, 1943*a* : 258. Replacement name 'for *Ephialtes kriechbaumeri* Schmiedeknecht, 1932, nec Dalla Torre, 1891, nec Habermehl, 1904, and for *Ephialtes geniculatus* Kriechbaumer, 1896, nec Brischke, 1864.'

Perkins seems to have confused the use of the name *kriechbaumeri* in *Ephialtes* with its use in *Pimpla*. *Ephialtes subglabratus* was the third replacement name proposed for *Ephialtes geniculatus* Kriechbaumer.

Identity. *Liotryphon kriechbaumeri* (Schulz) (Schulz, 1906 : 115; Aubert, 1969*a* : 45).

Epitomus proximus Perkins, 1953 : 161. Holotype ♀, ENGLAND: Suffolk, Bentley Woods [not Glos: Forest of Dean, High Meadow Woods as stated by Perkins] (BMNH) [examined].

See note on *Dicaelotus suspectus* Perkins.

Identity. *Epitomus proximus* Perkins.

Gunopaches crassus Perkins, 1962 : 394. Holotype ♀, SWEDEN: Skåne, Degeberga (BMNH) [examined].

Identity. *Phygadeuon crassus* (Perkins) (Perkins, 1962 : 426).

Herpestomus wesmaeli Perkins, 1953 : 157. Holotype ♀, ENGLAND: Buckinghamshire, Brickhill (BMNH) [examined].

Identity. *Herpestomus wesmaeli* Perkins.

Ichneumon aquilonius Perkins, 1953 : 148. Holotype ♀, SCOTLAND: Perthshire, Killin (BMNH) [examined].

Identity. *Ichneumon aquilonius* Perkins.

Ichneumon caproni Perkins, 1953 : 146. Holotype ♀, ENGLAND (BMNH) [examined].

Identity. *Ichneumon caproni* Perkins.

Ichneumon quartanus Perkins, 1953 : 145. Holotype ♀, ENGLAND: Westmorland, Langdale Pikes (BMNH) [examined].

Identity. *Ichneumon quartanus* Perkins.

Ichneumon septentrionalis Holmgren subsp. **atrifemur** Perkins, 1953 : 140. Replacement name for *Ichneumon septentrionalis scelestus* Perkins, junior primary homonym of *Ichneumon scelestus* Cresson.

Ichneumon septentrionalis Holmgren subsp. **scelestus** Perkins, 1952 : 362. Holotype ♀, ENGLAND: Sussex, near Worthing (BMNH) [examined].

The holotype is labelled 'TYPE ♀ Ichneumon septentrionalis subsp. atrifemur det. J. F. Perkins 1953'. See *Ichneumon septentrionalis atrifemur* Perkins above.

Identity. ?Junior synonym of *Ichneumon septentrionalis* Holmgren.

Itoplectis griseanae Perkins, 1957*b* : 323. Holotype ♀, SWITZERLAND: Grisons, Silvaplana (BMNH) [examined].

Identity. Junior synonym of *Itoplectis enslini* (Ulbricht) (Oehlke, 1967 : 27).

Itoplectis insignis Perkins, 1957*b* : 324. Holotype ♀, SWITZERLAND: Grisons, La Rösa (BMNH) [examined].

Identity. *Itoplectis insignis* Perkins.

Mevesia guttata Perkins, 1953 : 162. Holotype ♀, ENGLAND: Suffolk, Monks Soham (BMNH) [examined].

Identity. *Mevesia guttata* Perkins.

Nepiera proxima Perkins, 1942*a* : 65. Holotype ♀, SWEDEN: Skåne, Yddingen (BMNH) [examined].

Identity. *Meloboris proxima* (Perkins) **comb. n.** (Townes, 1970*b* : 173).

Paraethecerus elongatus Perkins, 1953 : 165. Holotype ♀, ENGLAND: Suffolk, Brandon (BMNH) [examined].

Identity. *Paraethecerus elongatus* Perkins.

Pemon proximum Perkins, 1962 : 395. Holotype ♀, EUROPE (MNHU, Berlin) [not examined].

Identity. *Lysibia proxima* (Perkins) (Perkins, 1962 : 443).

Phaeogenes (Proscus) coriaceus Perkins, 1953 : 167. Holotype ♀, ENGLAND: Hampshire, New Forest, Denny (BMNH) [examined].

Identity. Phaeogenes coriaceus Perkins.

Phaeogenes foveolatus Perkins, 1953 : 165. Holotype ♀, ENGLAND: Surrey, Boxhill (BMNH) [examined].

Identity. Phaeogenes foveolatus Perkins.

Pimpla melanacrias Perkins, 1941 : 645. Replacement name for *Pimpla geniculata* Hensch, junior secondary homonym of *Ichneumon geniculatus* Fourcroy.

Piogaster albina Perkins, 1958*b* : 264. Holotype ♀, GERMANY (BMNH) [examined].

Identity. Piogaster albina Perkins.

Piogaster punctulata Perkins, 1958*b* : 264. Holotype ♀, ENGLAND: Surrey, Horsley (BMNH) [examined].

Identity. Piogaster punctulata Perkins.

Piogaster rugosa Perkins, 1958*b* : 266. Holotype ♀, SWEDEN: Skåne, Sjöholmen (UZI, Lund) [not examined].

The holotype cannot be found in the UZI collections at present (R. Danielsson, personal communication).

Identity. Junior synonym of *Piogaster pilosator* (Aubert) (Aubert, 1969*a* : 66).

Platylabus odiosus Perkins, 1953 : 154. Holotype ♀, ENGLAND: Devon, Newton Abbot (BMNH) [examined].

Identity. Platylabus odiosus Perkins.

Platylabus stolidus Perkins, 1953 : 153. Holotype ♀, ENGLAND: Essex, Colchester (BMNH) [examined].

Identity. Platylabus stolidus Perkins.

Spilichneumon celenae Perkins, 1953 : 150. Holotype ♀, IRELAND (BMNH) [examined].

Identity. Spilichneumon celenae Perkins.

Stygera rufipes Perkins, 1962 : 397. Holotype ♀, ENGLAND: Hampshire, Brockenhurst (BMNH) [examined].

Identity. Cremnodes rufipes (Perkins) (Perkins, 1962 : 454).

Terozoa quadridens Perkins, 1962 : 399. Holotype ♂, ?GERMANY (ZSBS, Munich) [examined].

The holotype was not labelled as such by Perkins. However, there can be no doubt about its identity because it is the specimen shown on a 35 mm colour slide (BMNH collection) labelled 'TEROZOA QUADRIDENS P TYPE' by Perkins. The holotype labels include 'Terozoa m. A. Förster det.', 'Sammlung A. Förster' and 'HOLOTYPE ♂ Terozoa quadridens Perkins, 1962 det. M. G. Fitton, 1975'.

Identity. Ischyrocnemis quadridens (Perkins) (Townes, 1971 : 113).

STELFOX, A. W.

The Stelfox collection is in the USNM, Washington (Krombein, 1967).

Homocidus arcanus Stelfox, 1941 : 109. Holotype ♂, [IRELAND:] Co. Wicklow, Devil's Glen (USNM, Washington) [examined].

Identity. Campocraspedon arcanus (Stelfox). The placement given by Dasch (1964 : 211) is confirmed.

Homocidus collinus Stelfox, 1941 : 110. LECTOTYPE ♀, SCOTLAND: Perthshire, Rannoch (BMNH), here designated [examined].

Paralectotypes. 1 ♀, 4 ♂, same data as lectotype (BMNH); 1 ♀, [BRITISH ISLES] (BMNH, ex coll. Stephens); 1 ♂, SCOTLAND: Inverness-shire, Aviemore (BMNH, ex coll. G. C. Champion).

The remaining paralectotypes were not examined.

The lectotype has lost the tips of the hind tarsi.

The only specimens standing under the name *collinus* in the BMNH collection corresponded with the nine BMNH specimens listed in Stelfox's description but they were not labelled in any way to indicate their type status. It has therefore been necessary to select a lectotype from the two females which include the 'type (♀)' mentioned by Stelfox.

Identity. *Homotropus collinus* (Stelfox). The placement given by Dasch (1964 : 100) is confirmed.

Homocidus impolitus Stelfox, 1941 : 116. Holotype ♂, SCOTLAND: Dunbartonshire, Garelochhead (USNM, Washington) [examined].

Identity. *Homotropus impolitus* (Stelfox) **comb. n.**

Homocidus simulans Stelfox, 1941 : 111. Holotype ♀, [IRELAND:] Co. Dublin, Glenasmole (USNM, Washington) [examined].

Identity. *Homotropus simulans* (Stelfox). The placement given by Dasch (1964 : 100) is confirmed.

Homocidus subopacus Stelfox, 1941 : 115. Holotype ♀, [IRELAND:] Co. Dublin, Glenasmole (USNM, Washington) [examined].

Identity. *Homotropus subopacus* (Stelfox). The placement given by Dasch (1964 : 100) is confirmed.

Homocidus tricolor Stelfox, 1941 : 113. Holotype ♀, [IRELAND:] Dublin, Harold's Cross (USNM, Washington) [examined].

Identity. *Homotropus tricolor* (Stelfox) **comb. n.**

Phrudus defectus Stelfox, 1966 : 65. LECTOTYPE ♀, IRELAND: Co. Wicklow, Liffey Valley, Cloughleagh [as Cloughleague on specimen label] (USNM, Washington), here designated [examined].

Paralectotypes. 3 ♂, 5 ♀, same data as lectotype (USNM, Washington).

Stelfox did not label the type-material of this species and therefore it has been necessary to select a lectotype from the specimens from Cloughleagh [3 ♂, 6 ♀, not 2 ♂, 7 ♀ as stated by Stelfox].

Identity. *Phrudus defectus* Stelfox.

STEPHENS, J. F.

Stephens' collection was amalgamated with the other British collections in the BMNH by Morley (1910 : 170). The original placements of specimens cannot now be ascertained except for those bearing Stephens' cabinet labels together with printed labels 'Under this name in Stephens' coll.'. Stephens' collection included the ichneumonids from the collections of Francillon, Marsham, Haworth and Donovan (Stephens, 1835 : 154).

Alomya semiflava Stephens, 1835 : 274. LECTOTYPE ♂, [ENGLAND:] near London *or* Bristol (BMNH), here designated [examined].

Identity. *Alomya semiflava* Stephens (Perkins, 1952 : 363).

Ichneumon abdominator Stephens, 1835 : 202. Holotype ♀, [ENGLAND:] near London (BMNH) [examined].

The holotype is labelled 'Ichneumon abdominator Stephens 1835 ♀ TYPE. selected by J. F. Perkins 1952'.

Identity. Junior synonym of *Diadromus troglodytes* (Gravenhorst) (Perkins, 1953 : 112).

Ichneumon albifrons Stephens, 1835 : 144. Lectotype ♂, [ENGLAND:] near London *or* Salop [=Shropshire] (BMNH), by fixation of Perkins (1953 : 109) [examined].

The lectotype bears a printed label 'Under this name in Stephens' coll.' and a label in Morley's handwriting 'I. albifrons, Ste. (type) = I. fabricator Fab. ♂, var. CM i. 02'.

Identity. *Cratichneumon albifrons* (Stephens) (Perkins, 1953 : 109).

Ichneumon binotatus Stephens, 1835 : 147. Syntypes 2 [?♂], [ENGLAND:] near London (lost).

Identity. Junior synonym of *Syspasis lineator* (Fabricius) (Perkins, 1953 : 109; Townes, Momoi & Townes, 1965 : 603).

Ichneumon bipunctorius Stephens, 1835 : 154. Syntypes [?sex], [ENGLAND: Kent,] near Darenth Wood (lost).

It is not clear from the original description if all syntypes were taken near Darenth Wood.

Identity. Junior synonym of *Barichneumon albilineatus* (Gravenhorst) (Perkins, 1953 : 109).

Ichneumon castanopyga Stephens, 1835 : 197. Lectotype ♀, [ENGLAND:] Hertford (BMNH), by fixation of Perkins (1953 : 111) [examined].

Paralectotype ♂, SCOTLAND (BMNH).

The lectotype and paralectotype bear identical labels 'B.M. TYPE HYM. 3.b. 1577.' and 'B.M. TYPE HYM. Ichneumon castanopyga Stephens 1835 ?'. They have been labelled as lectotype and paralectotype by me.

Identity. *Amblyteles castanopyga* (Stephens) (Perkins, 1953 : 111).

Ichneumon cinctorius Stephens, 1835 : 189. Holotype ♂, [ENGLAND:] Hants [=Hampshire] (BMNH) [examined].

The holotype lacks the tips of the antennae and mid tarsi.

Identity. Junior primary homonym of *Ichneumon cinctorius* Fabricius. Synonym of *Diphyus indocilis* (Wesmael) (Perkins, 1953 : 112; Townes, Momoi & Townes, 1965 : 490).

Ichneumon cingulipes Stephens, 1835 : 157. Holotype ♀ [not ♂ as indicated by Stephens], [ENGLAND: Kent,] Darenth Wood (BMNH) [examined].

The holotype lacks the tips of the hind tarsi.

Identity. Junior synonym of *Achaius oratorius* (Fabricius) (Perkins, 1953 : 109; Townes, Momoi & Townes, 1965 : 502).

Ichneumon cognatus Stephens, 1835 : 139. Syntypes ♂ ♀, [ENGLAND:] near London (lost).

Identity. ? Junior synonym of *Limerodops subsericans* (Gravenhorst) (Perkins, 1953 : 109; Townes, Momoi & Townes, 1965 : 503).

Ichneumon compunctor Stephens, 1835 : 131. Holotype ♂, [ENGLAND: London] (BMNH) [examined].

The holotype lacks the tips of the antennae and mid tarsi.

Identity. Junior synonym of *Ichneumon cessator* Müller (Perkins, 1953 : 108).

Ichneumon concinnatorius Stephens, 1835 : 166. Type(s) [?sex], [ENGLAND:] near London (lost).

Identity. Junior synonym of *Ichneumon terminatorius* Gravenhorst (Perkins, 1953 : 110).

Ichneumon crassicornis Stephens, 1835 : 140. Holotype ♂, [ENGLAND:] ? Hertford (BMNH) [examined].

Identity. Junior primary homonym of *Ichneumon crassicornis* Rossi. Synonym of *Probolus concinnus* Wesmael (Perkins, 1953 : 109).

Ichneumon dimidiatus Stephens, 1835 : 173. Holotype ♂ [not ♀ as stated by Perkins (1953 : 110)], ENGLAND (BMNH) [examined].

The holotype has the tips of the antennae and fore tarsi and the entire mid tarsi missing.

Identity. Junior synonym of *Amblyteles pallidicornis* (Gravenhorst) (Perkins, 1953 : 110).

Ichneumon diversorius Stephens, 1835 : 175. Holotype ♀, [ENGLAND:] near London (BMNH) [examined].

The holotype lacks the tips of the antennae.

This specimen was overlooked by Perkins (1953 : 110).

Identity. Junior synonym of *Amblyteles armatorius* (Forster).

Ichneumon erythrogaster Stephens, 1835 : 188. Holotype ♀, [England:] Norfolk (BMNH) [examined].

Identity. Junior primary homonym of *Ichneumon erythrogaster* Gmelin. Synonym of *Protichneumon coqueberti* (Wesmael) (Perkins, 1953 : 111).

Ichneumon eximius Stephens, 1835 : 186. Holotype ♀, [North America, not Yorkshire as stated by Stephens] (BMNH) [examined].

The holotype lacks part or all of the fore tarsi, mid legs and hind tarsi.

Identity. *Coelichneumon eximius* (Stephens) (Perkins, 1953 : 110).

Ichneumon femorator Stephens, 1835 : 142. Holotype ♂, [England:] near London (BMNH) [examined].

Identity. Junior primary homonym of *Ichneumon femorator* Kirby. Junior synonym of *Probolus culpatorius* (Linnaeus) (Perkins, 1953 : 109).

Ichneumon femorator Stephens, 1835 : 200. Holotype ♀, [England:] near London (BMNH) [examined].

The holotype has the tips of the fore tarsi missing.

Identity. Junior primary homonym of *Ichneumon femorator* Kirby and of *Ichneumon femorator* Stephens, 1835 : 142. Junior synonym of *Colpognathus celerator* (Gravenhorst) (Perkins, 1953 : 112).

Ichneumon fulvipes Stephens, 1835 : 144. Type(s) [?sex], [England:] Hertford (lost).

Identity. Junior synonym of *Cratichneumon culex* (Müller) (Perkins, 1953 : 109).

Ichneumon fulvoscutellatus Stephens, 1835 : 162. Type(s) [?sex], [England:] Birch Wood (lost).

Identity. ? Junior synonym of *Ichneumon terminatorius* Gravenhorst (Perkins, 1953 : 110).

Ichneumon gasterator Stephens, 1835 : 199. Lectotype ♀, [England:] near London (BMNH), by fixation of Perkins (1953 : 111) [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The lectotype lacks the tips of the antennae.

The paralectotype is not conspecific with the lectotype and is *Cratichneumon fugitivus* (Gravenhorst) (Perkins, 1953 : 111).

Identity. Junior synonym of *Cratichneumon coruscator* (Linnaeus) (Perkins, 1953 : 111).

Ichneumon maculicornis Stephens, 1835 : 136. Lectotype ♀, [England:] near London (BMNH), by fixation of Perkins (1953 : 108) [examined].

The lectotype has only the right-hand wings, which are both damaged.

Identity. *Phaeogenes maculicornis* (Stephens) (Perkins, 1953 : 108).

Ichneumon maculifrons Stephens, 1835 : 133. Syntypes [?sex], [England:] near London *and* Salop [=Shropshire] (lost).

Identity. Junior synonym of *Cratichneumon fabricator* (Fabricius) (Perkins, 1953 : 108).

Ichneumon melanopyrrhus Stephens, 1835 : 195. Holotype ♂, [England:] near London (BMNH) [examined].

The holotype is very dirty and lacks the tips of the antennae.

Identity. Junior synonym of *Coelichneumon orbitator* (Thunberg) (Perkins, 1953 : 111).

Ichneumon microcephalus Stephens, 1835 : 158. Lectotype ♂, [England:] near London *or* Scotland (BMNH), by fixation of Perkins (1953 : 110) [examined].

The lectotype has the tips of the mid and hind tarsi and of the antennae missing.

Identity. Junior synonym of *Ichneumon formosus* Gravenhorst (Perkins, 1953 : 110).

Ichneumon nigerrimus Stephens, 1835 : 130. Holotype ♂, [England:] Shropshire (BMNH) [examined].

The holotype lacks the tips of the antennae and hind tarsi.

Identity. *Coelichneumon nigerrimus* (Stephens) (Perkins, 1953 : 108).

Ichneumon picipes Stephens, 1835 : 204. Type(s) [?sex], [England:] near London (lost).

Identity. ?*Phaeogenes picipes* (Stephens) (Perkins, 1953 : 112).

Ichneumon pyrrhopus Stephens, 1835 : 198. Syntypes [?sex], [ENGLAND:] near London *and* Norfolk (lost).

Identity. Junior synonym of *Cratichneumon fabricator* (Fabricius) (Perkins, 1953 : 111).

Ichneumon quadrinotatus Stephens, 1835 : 163. Type(s) [?sex], [GREAT BRITAIN] (lost).

Identity. Junior synonym of *Ichneumon gracilicornis* Gravenhorst (Perkins, 1953 : 110).

Ichneumon rufator Stephens, 1835 : 201. Holotype ♂, [ENGLAND:] near London (BMNH) [examined].

The holotype lacks the tips of the antennae and hind tarsi.

Identity. Junior synonym of *Phaeogenes semivulpinus* (Gravenhorst) (Perkins, 1953 : 112).

Ichneumon rufescens Stephens, 1835 : 207. Holotype ♀, [ENGLAND:] near London (BMNH) [examined].

Identity. Junior synonym of *Aoplus ratzeburgii* (Hartig) (Perkins, 1953 : 112).

Ichneumon ruficollis Stephens, 1835 : 206. Type(s) [?sex], [ENGLAND:] Hertford (lost).

Identity. Junior synonym of *Barichneumon sanguinator* (Rossi) (Perkins, 1953 : 112).

Ichneumon rufipes Stephens, 1835 : 131. Lectotype ♂, [ENGLAND:] within the metropolitan district [=London] *or* Coombe Wood *or* Hertford *or* Salop [=Shropshire] (BMNH), by fixation of Perkins (1953 : 108) [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The lectotype lacks the tips of the hind tarsi.

The paralectotype is not conspecific with the lectotype and is a female of *Eurylabus torvus* Wesmael. The status of two further female *E. torvus* and one male *Polytribax curvus* (Schrank) from Stephens' collection is uncertain.

Identity. Junior synonym of *Polytribax curvus* (Schrank) (Perkins, 1953 : 108).

Ichneumon triangulator Stephens, 1835 : 177. Type(s) [?sex], [ENGLAND:] near London (lost).

Identity. Junior synonym of *Diphyus trifasciatus* (Gravenhorst) (Perkins, 1953 : 110; Townes, Momoi & Townes, 1965 : 495).

Mesoleptus annulator Stephens, 1835 : 223. Holotype ♂ [not ♀ as stated by Morley (1911*c* : 240)], [ENGLAND:] near London (BMNH) [examined].

The holotype is in poor condition and lacks much of the mid legs and hind tarsi.

Identity. Junior synonym of *Euryproctus annulatus* (Gravenhorst) (Morley, 1911*c* : 240).

Mesoleptus gracilis Stephens, 1835 : 228. Holotype ♀, [ENGLAND:] Hertford (BMNH) [examined].

Identity. *Hadrodactylus gracilis* (Stephens).

Mesoleptus mirabilis Stephens, 1835 : 223. Holotype [?sex], ENGLAND: Coombe Wood (BMNH) [examined].

The gaster and hind tarsi are missing from the holotype.

Identity. I have not been able to place this species. It is not a synonym of *Sympherta fuscicornis* (Gmelin) as given by Morley (1911*c* : 237).

Mesoleptus spilonotus Stephens, 1835 : 227. LECTOTYPE ♀, [ENGLAND:] Coombe Wood (BMNH), here designated [examined].

The lectotype has the tips of the hind tarsi missing.

Identity. *Perilissus spilonotus* (Stephens) (Morley, 1911*c* : 258).

Mesoleptus subcompressus Stephens, 1835 : 228. Type(s) [?sex], [ENGLAND: Kent,] Darenth Wood (lost).

Identity. Unknown, the name remains a *nomen dubium*.

Mesoleptus submarginatus Stephens, 1835 : 214. Holotype ♀, [ENGLAND:] Hertford (BMNH) [examined].

The holotype lacks the tips of the antennae and hind tarsi.

Identity. Junior synonym of *Mesoleptidea cingulatus* (Gravenhorst) (Morley, 1911*c* : 227, as *Mesoleptus*).

Mesoleptus suborbitalis Stephens, 1835 : 222. Syntypes ?♀, [ENGLAND:] near London *and* New Forest (lost).
Identity. Unknown, the name remains a *nomen dubium.* Placed by Morley (1911*c* : 241) as a synonym of *Euryproctus nemoralis* (Fourcroy).

Mesoleptus trimaculatus Stephens, 1835 : 217. Type(s) [?sex], [ENGLAND:] near London (lost).
Identity. Unknown, the name remains a *nomen dubium.*

Trogus atrocaudatus Stephens, 1835 : 271. Syntypes ♂ ♀, [GREAT BRITAIN] (lost).
Identity. Junior synonym of *Callajoppa cirrogaster* (Schrank) (Perkins, 1953 : 112).

Trogus dissimulator Stephens, 1835 : 272. Syntypes 4 [?sex], [GREAT BRITAIN. At least one specimen from 'Birch Wood'] (lost).
Identity. Junior synonym of *Ichneumon didymus* Gravenhorst (Perkins, 1953 : 113).

Tryphon anceps Stephens, 1835 : 243. Type(s) [?sex], [ENGLAND:] near Hertford (lost).
Identity. Unknown, the name remains a *nomen dubium.* Morley (1911*c* : 194) synonymized this species with *Eridolius alacer* (Gravenhorst) but Kerrich (1952 : 350) considered this improbable.

Tryphon atriceps Stephens, 1835 : 262. Lectotype ♂, [ENGLAND:] near London (BMNH), by designation of Fitton (1975 : 160) [examined].
Identity. *Tryphon atriceps* Stephens.

Tryphon axillaris Stephens, 1835 : 256. Holotype ♂, [ENGLAND:] near London (BMNH) [examined].
The holotype lacks most of the antennae and hind tarsi.
Identity. *Campodorus axillaris* (Stephens) **comb. n.** (det. H. K. Townes).

Tryphon basalis Stephens, 1835 : 255. Holotype ♀, [ENGLAND:] near London (BMNH) [examined].
The holotype lacks the tips of the antennae.
Identity. *Eridolius basalis* (Stephens) **comb. n.**

Tryphon bidentatus Stephens, 1835 : 253. Holotype ♂, [ENGLAND:] near London (BMNH) [examined].
Identity. *Tryphon bidentatus* Stephens.

Tryphon conspicuus Stephens, 1835 : 244. Type(s) [?sex], [ENGLAND:] near London (lost).
Identity. Unknown, the name remains a *nomen dubium.* Placed by Morley (1911*c* : 135) as a synonym of *Protarchus rufus* (Gravenhorst) (=*testatorius* (Thunberg)).

Tryphon elegans Stephens, 1835 : 239. Holotype ♀, [ENGLAND: Kent,] Darenth Wood (BMNH) [examined].
Identity. *Eridolius elegans* (Stephens) **comb. n.** (Kerrich, 1952 : 430).

Tryphon facialis Stephens, 1835 : 263. Lectotype ♂, [ENGLAND:] within the metropolitan district [=London] (BMNH), by designation of Fitton (1975 : 165) [examined].
Identity. Junior synonym of *Tryphon signator* Gravenhorst.

Tryphon flavilabris Stephens, 1835 : 232. Syntypes [?sex], [ENGLAND: London *and* Shropshire] (lost).
Identity. Unknown, the name remains a *nomen dubium.*

Tryphon lineola Stephens, 1835 : 255. LECTOTYPE ♂, [ENGLAND:] near London (BMNH), here designated [examined].
The lectotype has the antennal flagellae and the tips of the fore tarsi missing.
Identity. *Eridolius lineola* (Stephens) **comb. n.**

Tryphon maculicollis Stephens, 1835 : 234. Holotype ♀, [ENGLAND:] near London (BMNH) [examined].
The holotype lacks the tips of the hind tarsi.
Identity. *Campodorus maculicollis* (Stephens) **comb. n.** (det. H. K. Townes).

Tryphon mesoleptoides Stephens, 1835 : 245. Holotype ♀, [ENGLAND:] Hertford (BMNH) [examined].

The head is detached from the holotype.

Identity. Junior synonym of *Kristotomus triangulatorius* (Gravenhorst) (Kerrich, 1952 : 323).

Tryphon obscurus Stephens, 1835 : 253. Holotype ♂, [ENGLAND:] near London (BMNH) [examined].

The holotype lacks the tips of the antennae.

Identity. *Ctenochira obscurus* (Stephens) **comb. n.**

Tryphon pachysoma Stephens, 1835 : 245. Type(s) [? sex], [GREAT BRITAIN] (lost).

Identity. ?*Eridolius pachysoma* (Stephens). There are specimens under this name in the BMNH collection.

Tryphon quadratus Stephens, 1835 : 262. Lectotype ♂, [ENGLAND:] within the metropolitan district [=London] (BMNH), by designation of Fitton (1975 : 163) [examined].

Identity. Junior synonym of *Tryphon rutilator* (Linnaeus).

Tryphon rufulus Stephens, 1835 : 244. LECTOTYPE ♂, [ENGLAND:] New Forest *or* Sheffield *or* Kimpton (BMNH), here designated [examined].

The lectotype was labelled as 'type' by J. F. Perkins.

Identity. **Syn. n.** of *Protarchus testatorius* (Thunberg, 1822 : 276 (*Ichneumon*)), holotype ♀, SWEDEN (ZIU, Uppsala) [not examined].

Tryphon scapularis Stephens, 1835 : 257. Holotype ♀, [ENGLAND:] near London (BMNH) [examined].

Identity. *Campodorus scapularis* (Stephens) **comb. n.**

Tryphon subfasciatus Stephens, 1835 : 251. LECTOTYPE ♀, [ENGLAND:] near London (BMNH), here designated [examined].

Paralectotype ♀, same data as lectotype (BMNH).

The lectotype lacks the tips of the antennae.

Identity. *Rhorus subfasciatus* (Stephens) **comb. n.**

Tryphon thoracicus Stephens, 1835 : 241. Type(s) [? sex], [ENGLAND: Kent,] Darenth Wood (lost).

Identity. Unknown, the name remains a *nomen dubium*.

Tryphon trisculptus Stephens, 1835 : 252. LECTOTYPE ♂, [ENGLAND:] near London (BMNH), here designated [examined].

The lectotype was labelled as 'type' by Morley. The other two specimens referred to by him cannot now be identified.

Identity. Junior synonym of *Ctenochira sphaerocephalus* (Gravenhorst) (Morley, 1911*c* : 296, as *Tryphon*).

Tryphon zonatus Stephens, 1835 : 258. Type(s) [? sex], [ENGLAND:] near London (lost).

Identity. Unknown, the name remains a *nomen dubium*.

WALKER, F.

Part of the collection from which Walker described the following ichneumonids went to the School of Medicine in Cairo but by 1884 only pins and labels remained. Innes Bey (1912) gives a list of the labels.

Campoplex posticus Walker, 1871 : 2. Type(s) ♂, EGYPT: Cairo (destroyed).

Identity. Unknown, the name remains a *nomen dubium*.

Campoplex tarsalis Walker, 1871 : 2. Type(s) ♀, EGYPT: Cairo (destroyed).

Identity. Unknown, the name remains a *nomen dubium*.

Cryptus leucopygus Walker, 1871 : 1. Type(s) ♀, EGYPT: Cairo (destroyed).
Identity. Unknown, the name remains a *nomen dubium*.

Xorides aegyptius Walker, 1871 : 3. Type(s) ♀, EGYPT: Cairo (lost).
Identity. Unknown, the name remains a *nomen dubium*. Given as a synonym of *Exeristes roborator* (Fabricius) by Aubert (1969*a* : 22).

WATERSTON, J.

Stenomacrus (Neurateles) britteni Waterson, 1929 : 633. Holotype ♀, ENGLAND: Cheshire, Delamere (BMNH) [examined].
Identity. *Neurateles britteni* (Waterston) **comb. n.**

WESTWOOD, J. O.

Pimpla (Ephialtes) sodomiticus Westwood *in* Elliot, 1838 : 17. Type(s) ♀, [?Dead Sea area] (lost).
Identity. Unknown, the name remains a *nomen dubium*.

WOLLASTON, T. V.

Bassus albovarius Wollaston, 1858 : 23. Holotype ♀, MADEIRA (BMNH) [examined].
Labels on the holotype include 'Madeira. Wollaston.' and 'Bassus albovarius, W.'.
Identity. Junior synonym of *Diplazon laetatorius* (Fabricius) (Roman, 1937 : 1).

Ephialtes lateralis Wollaston, 1858 : 22. LECTOTYPE ♀, MADEIRA (BMNH), here designated [examined].
Paralectotypes. 2 ♀, same data as lectotype (BMNH).
The lectotype is labelled 'Ephialtes lateralis, W.' and one paralectotype has 'This is the specimen figured by Westwood' on the underside of its mount.
Identity. *Dolichomitus lateralis* (Wollaston) (Oehlke, 1967 : 13).

Ephialtes linearis Wollaston, 1858 : 22. LECTOTYPE ♀, MADEIRA (BMNH), here designated [examined].
Paralectotypes. 2 ♂, 2 ♀, same data as lectotype (BMNH).
The lectotype is labelled 'Ephialtes linearis, W.'. The three females are of similar size and are thus in accord with the single set of measurements given by Wollaston. One male paralectotype is not conspecific with the other specimens and is a syntype of *Scambus monticola* Roman and bears Roman's labels 'Allotyp' and 'Scambus monticola n. sp. ♂ ♀ A. Roman det.' [the ♀ refers to two female syntypes – see under *Ephialtes lineatus* Wollaston].
Identity. *Clistopyga linearis* (Wollaston) (Roman, 1937 : 1).

Ephialtes lineatus Wollaston, 1858 : 22. LECTOTYPE ♀, MADEIRA (BMNH), here designated [examined].
Paralectotypes. 2 ♀, same data as lectotype (BMNH).
The antennae are missing from the lectotype. The lectotype is labelled 'Ephialtes lineatus Woll.' in J. F. Perkins handwriting. It is of interest to note that the original label from this specimen (now missing) is illustrated by Horn & Kahle (1935 : pl. 5, fig. 29). It seems probable that the handwriting on this, and the similar labels on the specimens of other species, is not Wollaston's.
The paralectotypes are not conspecific with the lectotype and stand in the BMNH collection under the name *Scambus monticola* Roman. Although they do not bear Roman's labels they are undoubtedly syntypes of his species (Roman, 1937 : 1).
Identity. *Tromatobia lineatus* (Wollaston) (Roman, 1937 : 1).

Exetastes peregrinus Wollaston, 1858 : 22. LECTOTYPE ♀, Madeira (BMNH), here designated [examined].

Paralectotypes. 1 ♀, 3 ♂, same data as lectotype (BMNH).

Wollaston restricted his description to males but since the specimen figured (1858 : pl. 4, fig. 2) is female he presumably mis-sexed some of his material. The lectotype is the specimen regarded and labelled by Morley (1911*b* : 211) as the 'type'.

Identity. Dusona peregrina (Wollaston) **comb. n.**

Hemiteles postica Wollaston, 1858 : 22. Holotype ♀, Madeira (BMNH) [examined].

The holotype is labelled 'Hemiteles postica, W.'.

Identity. ?Phygadeuon postica (Wollaston) (Roman, 1937 : 1).

Lissonota dorsalis Wollaston, 1858 : 23. LECTOTYPE ♂, Madeira (BMNH), here designated [examined].

Paralectotypes. 4 ♂, same data as lectotype (BMNH).

The lectotype is labelled 'Lissonota dorsalis, W.' and has 'The specimen figured by Westwood' on the underside of the card mount. Three female specimens in the BMNH collection are not regarded as paralectotypes.

Identity. Pimpla dorsalis (Wollaston) (Morley, 1914 : 66).

Misoleptus maderensis Wollaston, 1858 : 21. Holotype ♂, Madeira: Lombo dos Pecegueiros (BMNH) [examined]. *Misoleptus* is a lapsus for *Mesoleptus*.

The holotype is labelled 'Misoleptus maderensis, W.'.

Identity. ?Megastylus maderensis (Wollaston) **comb. n.**

SUMMARY OF NEW COMBINATIONS AND NEW SYNONYMS

The nomenclatural changes established in this paper are summarized below. The order is alphabetical and in the synonyms the invalid junior name is cited first.

New combinations

Acrolyta xylonomoides (Morley)
Agrothereutes brevipennis (Marshall)
Agrypon gracilipes (Curtis)
Alexeter attenuatus (Bridgman)
Alexeter gracilipes (Curtis)
Apophua suturalis (Morley)
Aptesis hopei (Desvignes)
Aptesis scoticus (Marshall)
Arbelus athaliaeperda (Curtis)
Astiphromma sericans (Curtis)
Astiphromma splenium (Curtis)
Barylypa cylindricum (Bridgman & Fitch)
Bathythrix alter (Kerrich)
Campodorus axillaris (Stephens)
Campodorus maculicollis (Stephens)
Campodorus peronatus (Marshall)
Campodorus scapularis (Stephens)
Charitopes brunneus (Morley)
Cidaphus atricilla (Haliday)
Ctenochira obscurus (Stephens)
Ctenochira subrufa (Bridgman)
Ctenopelma tomentosus (Desvignes)
Cymodusa fasciatus (Bridgman & Fitch)
Dusona peregrina (Wollaston)
Entypoma remotus (Marshall)
Eridolius basalis (Stephens)
Eridolius curtisii (Haliday)
Eridolius elegans (Stephens)
Eridolius lineola (Stephens)
Eridolius pachysoma (Stephens)
Eridolius romani (Kerrich)
Gelis confusus (Bridgman)
Hadrodactylus marginatus (Bridgman)
Hadrodactylus ventralis (Curtis)
Heterocola linguarius (Haliday)
Homotropus impolitus (Stelfox)
Homotropus reflexus (Morley)
Homotropus tricolor (Stelfox)
Hybophanes ops (Morley)
Hypamblys arctophylax (Marshall)
Hyposoter henaultii (Desvignes)
Hyposoter placidus (Desvignes)
Javra anomala (Morley)
Lathrolestes minutus (Bridgman)
Latibulus fulvipes (Cameron)
Leptacoenites notabilis (Desvignes)

New combinations—*continued*

Lissonota kolae (Morley)
Megastylus maderensis (Wollaston)
Meloboris proxima (Perkins)
Neostroblia deficiens (Morley)
Netelia madeirensis (Morley)
Oresbius arridens (Gravenhorst)
Otlophorus caninae (Bridgman)
Phobocampe croceipes (Marshall)
Platyrhabdus rufus (Morley)
Polytribax errator (Marshall)
Rhorus caproni (Bridgman)
Rhorus glaber (Bridgman)
Rhorus subfasciatus (Stephens)
Saotis renovatus (Morley)
Stiboscopus anglicanus (Morley)
Stiboscopus notaulius (Morley)
Syntactus minutus (Bridgman)
Temelucha buoliana (Curtis)
Theroscopus londinensis (Morley)
Theroscopus marshalli (Bridgman & Fitch)
Theroscopus thomsoni (Kerrich)
Triptognathus propinquus (Perkins)
Tymmophorus hyperboreus (Marshall)
Xenoschesis ustulatus (Desvignes)
Xorides rusticus (Desvignes)

New synonyms

Bassus tibialis Bridgman, **syn. n.** of *Bioblapsis polita* (Vollenhoven)
Ctenichneumon flavocinctus rufescens Morley, **syn. n.** of *Ctenichneumon panzeri* (Wesmael)
Ctensicus lineiger nordstromi Kerrich, **syn. n.** of *Eridolius lineiger* (Thomson)
Ephialtes albispiculus Morley, **syn. n.** of *Liotryphon crassisetus* (Thomson)
Exyston cinctulus approximatus Kerrich, **syn. n.** of *Exyston sponsorius* (Fabricius)
Lamachus pini caledonicus Laidlaw, **syn. n.** of *Lamachus pini* (Bridgman)
Mesoleptus scutellatus Bridgman, **syn. n.** of *Gunomeria macrodactyla* (Holmgren)
Perilissus triangulatus Bridgman, **syn. n.** of *Azelus erythropalpus* (Gmelin)
Pimpla alternans spiracularis Morley, **syn. n.** of *Itoplectis alternans* (Gravenhorst)
Pimpla turionellae rufistigma Morley, **syn. n.** of *Pimpla contemplator* (Müller)
Pimpla turionellae rufitibia Morley, **syn. n.** of *Pimpla contemplator* (Müller)
Polyblastus unicinctus Bridgman, **syn. n.** of *Polyblastus cothurnatus* (Gravenhorst)
Tryphon rufulus Stephens, **syn. n.** of *Protarchus testatorius* (Thunberg)

SUMMARY OF *NOMINA DUBIA*

The following names remain *nomina dubia*. It may prove possible to place the names during revisionary studies.

Atractodes albovinctus Haliday
Atractodes citator Haliday
Atractodes dionaeus Haliday
Atractodes piceicornis Haliday
Atractodes salius Haliday
Bassus thoracicus Desvignes
Campoplex posticus Walker
Campoplex tarsalis Walker
Cryptus leucopygus Walker
Cryptus ruficeps Desvignes
Cryptus sanguinator Desvignes
Cryptus (*Clepticus*) *socius* Haliday
Cryptus (*Helictes*) *varius* Haliday
Exochus antiquus Haliday
Hemiteles gyrini Parfitt
Hemiteles litoreus Parfitt
Ichneumon atrator Forster
Ichneumon femorator Kirby
Limneria affinis Parfitt
Lissonota obsoleta Bridgman
Mesoleius brachyacanthus Parfitt
Mesoleptus speciosus Curtis
Mesoleptus subcompressus Stephens
Mesoleptus suborbitalis Stephens
Mesoleptus trimaculatus Stephens
Pimpla cossivora Curtis
Pimpla (*Ephialtes*) *sodomiticus* Westwood
Polyblastus bridgmani Parfitt
Tryphon anceps Stephens
Tryphon conspicuus Stephens
Tryphon flavilabris Stephens
Tryphon haemosternus Haliday
Tryphon thoracicus Stephens
Tryphon zonatus Stephens
Xorides aegyptius Walker

LIST OF REPLACEMENT NAMES

Replacement names proposed by British authors are listed below. Full details are given in the catalogue.

Barichneumon maculicauda Perkins
Bassus desvignesii Marshall
Coelichneumon purpurissatus Perkins
Ephialtes curticornis Perkins
Ephialtes desvignesii Marshall
Ephialtes subglabratus Perkins
Hoplocryptus thomsoni Bridgman
Ichneumon septentrionalis atrifemur Perkins
Limnerium renominatum Morley
Pimpla melanacrias Perkins
Promethes bridgmani Fitton, **nom. n.** for *Bassus scutellaris* Bridgman
Saotis morleyi Fitton, **nom. n.** for *Homocidus emarginatus* Morley

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